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User's Guide to Selection of Blasting Abrasives

U.S. DEPARTMENT OF THE NAVY
CARDEROCK DIVISION,
NAVAL SURFACE WARFARE CENTER

in cooperation with
Peterson Builders, Inc.

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National Shipbuilding Research Program

Project Number 3-95-7

User's Guide to Selection of Blasting Abrasives

Final Report

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1. Executive Summary

The purpose of this guide for abrasive selection is: through proper abrasive selection shipyards can improve productivity, reduce waste, and decrease the costs associated with abrasive blast cleaning.

Abrasive blasting is generally acknowledged to be the most effective and efficient means of surface preparation. Blasting accounts for about two-thirds of the cost of the surface preparation and coating operation, which is itself, a major cost component of shipyards. The wide variations in types of abrasive, blasting processes and operator proficiency, result in huge fluctuations in the efficiency and cost of the abrasive blasting operation. Therefore, significant reduction in cost and improvement in production can be attained by proper selection and use of abrasives, meeting the objective of this project; to develop a shipyards guide to select abrasive and blasting parameters that will optimize this activity.

The guide allows the user to perform the following analyses:

- **Estimating productivity and consumption rates**

  Blasting productivity (sq. ft. per hr.) and abrasive consumption rate (lbs of abrasive per sq. ft., or lbs of abrasive per hr.) are computed for various conditions. These quantities are derived from an 11 step procedure. The user is asked to define the existing surface (i.e., Type and condition of coating or metal) and the end condition (i.e., degree of cleaning and profile) sought. The model computes productivity and consumption rates for 13 abrasives under one of four blasting pressures from between 90 to 125 psi and one of three different nozzle sizes, ranging between sizes 6 and 8. Adjustment to these basic rates can be made for factors such as the accessibility of the area to be cleaned, the elevation and the need for special controls (e.g., of dust). These computations are based on data derived from industry and literature surveys (see discussion below).

- **Estimating costs for specific shipyard blasting activities**

  Costs are computed from the following components: shipyard labor (blasting and set up), abrasive materials, and waste disposal. The model computes costs per sq. ft. based on user input forlabor factors, type and size of project, type of abrasive, nature of waste (hazardous or non-hazardous), along with other parameters described above, the model computes costs per sq. ft.

- **Benchmarking shipyard blasting operations**

  The model also allows the user to compare current shipyard blasting productivity, abrasive consumption rates and costs with this guides industry norms. The user is guided on how to determine actual production and consumption rates for the shipyard for direct comparison with the data from the industry survey.

The guide can be operated in an electronic version or hard copy version. The latter uses a handbook format with data provided in a well-indexed look-up tables.

The databases on productivity and consumption rates were derived from an extensive search of data from published literature, and from experiences of abrasive users and suppliers. These are available in electronic format.

The literature review is described in the second of our interim deliverables, previously submit-

ted to NSRP Program Management. It describes basic characteristics of abrasives, the blasting process, illustrates the principal factors affecting production/consumption and other performance parameters.

Shipyard experience with the use of abrasives is summarized in Section 6.C.

The project also entailed a review and analysis of regulations affecting the use of abrasives and of available standards for abrasives from the government, commercial and international sources. These analyses are referenced in Section 6. A summary of available standards is given in Section 6.D.

2. Introduction

This project provides a "User’s Guide to Selection of Blasting Abrasives." The guide can help reduce the overall cost of surface preparation, a critical cost component in shipbuilding. Shown below is the original abstract published by NSRP for this project. Following the abstract is a description of the scope of the project and its key deliverables.

A. Abstract of Project

The following is the abstract for the project.

Title: “User’s Guide to Selection of Blasting Abrasives”

Objective: Provide a comprehensive guide to abrasive selection based on qualification, cleaning capability, physical properties, costs, surface quality, productivity, safety and environmental impact.

Background: Surface preparation by abrasive blasting involves a wide variety of cleaning requirements for new construction and ship repair. These range from cleaning of preconstruction primer and light rust to removal of thick coatings, heavy rust and marine growth. The market offers a multitude of choices of one-time use and recyclable abrasives.

In order to execute a credible analysis, several factors must all be taken into account: personal hygiene, environmental impact, waste disposal, material cost, productivity, cleaning effectiveness, coating performance, climatic effects, cleanliness standards (for both new and recyclable) and equipment costs. This study will provide the data, standards and tests upon which decisions can be based.

Technical

Task 1: Identify all types of abrasives available to user for both single use and recyclable (i.e., metallic, mineral, synthetic, by-product, agriculture, etc.) Define characteristics of each. Collect latest standards or specifications for each type.
Task 2: Collect performance data. Identify cost drivers.
Task 3: Outline safety, health, environmental, cleanliness and disposal requirements. Define all associated regulations.
Task 4: Develop test models to stimulate typical shipyard applications.
Task 5: Provide comprehensive cost models to support the abrasive selection process.
Task 6: Produce a standard guidance document for abrasive selection.
Task 7: Write Report

Benefits: Shipyards will have a comprehensive guidance document to abrasive performance, cleanliness and cost.

B. Scope and Key Deliverables

The scope of the project is to provide a comprehensive guide to the selection of abrasives. This guide addresses key factors in abrasive selection such as:

- Cleaning capability;
- Physical properties;
- Costs;
- Surface quality;
- Productivity;
- Safety, and
- Environmental impact.

The seven deliverables were:

Deliverable 1: A report summarizing the different types of abrasives, industry specifications and consensus standards defining each abrasive type.

Deliverable 2: A report describing the performance properties of different abrasive types. The report contains productivity and consumption data gathered from both a technical literature review, and surveys of abrasive manufacturers or users.

Deliverable 3: A report describing the regulatory impact on abrasive selection and use from health, safety and environmental regulations. The report contains information about respiratory effects of different types of abrasive and also addresses waste disposal issues.

Deliverable 4: This report describes a process for modeling the abrasive productivity and consumption in typical shipyard applications. The data used to create the report is taken from the earlier industry surveys and technical literature sources identified in deliverable 2.

Deliverable 5: A second modeling exercise assessed costs associated with abrasive use. This model builds on the data contained in deliverable 4 and creates a cost model for surface preparation. Using the model, estimates of the costs for typical surface preparation tasks are made.

Deliverable 6: The guide to abrasive selection provides a user with a way to make abrasive selections based on their knowledge of the surface preparation task. The productivity and consumption information shown in the guide come from databases created for deliverable 4. Guidance on cost estimating is based on the model database created for deliverable 5.

Deliverable 7: This report, describing how the project was conducted, and its key deliverables.

C. How Project Can Benefit Shipyards

This project benefits shipyards by helping them control a significant component of the cost of building a vessel. Surface preparation and coating account for at least five percent of the total cost of a vessel, according to the work of Peterson Builders in their report for NSRP.[1] Surface preparation costs alone can account for over two-thirds of the cost of surface preparation and coating.[2] The efficiency of surface preparation is critically dependent on the method used for cleaning. The most widely used method of surface preparation is abrasive blasting. This is because it is more cost effective than alternative methods, such as High Pressure Water Jetting or power tool cleaning. Optimizing the abrasive blasting process by improving the efficiency of the abrasive blasting process and reducing abrasive consumption can yield significant cost advantages.

1. NSRP Report Number 0302, “The Economics of Shipyard Painting Phase II, Bid Stage Estimating.”
2. Good Painting Practice, Volume 1 of the Steel Structures Painting Manual, Chapter 8.0, “Comparative Painting Costs,” 3rd Edition, SSPC 1993.

There are many abrasives available to a user. Each abrasive has unique physical and performance characteristics. There are also a variety of surface preparation tasks faced by a shipyard, for new construction and for maintenance activities. Properly matching the abrasive to the task at hand can result in the following:

- Reduced rework of cleaned and coated surfaces;
- Improved production rates;
- Reduced waste disposal costs, and
- Improved cost efficiency.

The guide and database deliverables produced in this project give a user the tools needed to select the best abrasive. Specifically, these tools guide the user to:

- Determine production and consumption rates for a specific choice of abrasive;
- Determine the expected consumption and labor costs of the use of this abrasive, and
- Measure the users process against the expectations for performance suggested by the guide.

The net results to a shipyard are a reduced cost of operations and an enhanced competitiveness.

3. Description of Project Tasks and Deliverables

The primary goal of the project was the delivery of a user's guide to selection of abrasive materials. This user's guide to abrasive selection was the sixth deliverable. The five earlier interim deliverables, in the form of technical reports and electronic databases, provided the materials for creation of the user's guide.

A. Description of Information Searches and Associated Deliverables

There were three deliverables associated with our information search. The first of these was a report which summarized available technical information on abrasive material types, specifications describing abrasives and industry standards for abrasive performance.

The second of these deliverables focussed on abrasive performance and consumption characteristics. It was the result of two information search efforts. One of these efforts was a literature search to elicit information on abrasive consumption, productivity and physical characteristics. The second effort was to acquire information on abrasive consumption and productivity from the marine community, the general painting industry and from abrasive manufacturers.

The third of our information reports summarized the impact of health, safety and environmental regulations on abrasive selection and use.

A.1 Literature Surveys for Industry Standards and Specifications

Part of the first deliverable was a survey to identify industry standards and specifications. This first deliverable also included information on classification of abrasive materials. The information search was conducted through a review of the technical literature and SSPC's technical libraries of consensus specifications and standards. Major sections of the first deliverable dealing with industry specifications and standards are described below.

A.1.1 Standards for Blast Cleaning Abrasives

This section describes commercial, military and international standards and specifications for abrasive materials.

Description of Standards

The most complete, and most recently issued, set of standards for blast cleaning abrasives is that from the International Organization for Standardization (ISO). There are four main ISO standards pertaining to blasting abrasives. Each of these is composed of several parts, each part dealing with a specific abrasive or test method. The pertinent parts of the various ISO standards are condensed into a set of tables in deliverable 1. The ISO requirements for both metallic abrasives and non-metallic abrasives are also tabulated. The ISO abrasive size designations are correlated with the Society of Automotive Engineers (SAE) J444 size designations. Sieve analyses are given for each abrasive size. The SSPC specifications for metallic and non-metallic abrasives are discussed. Efficiencies and cleaning rates from proprietary sources are referenced from SSPC's Steel Structures Painting Manual for selected non-metallic abrasives.

The military specifications MIL-A-21380 and MIL-A-22262(SH) for metallic and mineral abrasives are discussed.

Additional information is given which correlates the metric size designations found in the ISO specifications with the corresponding U.S. units from the SSPC or SAE specifications.

All the specifications and standards contain chemical and composition requirements. Many include performance measures (such as shape retention, hardness or friability). The way these requirements are described differs from one standards setting body to another, this makes it difficult to directly compare one document with another. Performance or composition requirements for all specifications are tabulated to make overcome this difficulty.

Discussion of Abrasive Material Classes

The specifications also contain generic descriptions of abrasive materials. These descriptions are used to form the basis of a classification system shown later on page 21. The hardness, relative toughness, and specific gravity of many non-metallic abrasives are discussed. The common mineral make-up and other distinguishing characteristics of each abrasive are tabulated.

Description of Key Abrasive Characteristics

The relevance and impact of key abrasive characteristics are discussed. Specific topics addressed included:

- Hardness
- Toughness
- Specific Gravity
- Abrasive Sizing, and
- Classification of Mineral Slag Abrasives

A.2 Literature Surveys for Abrasive Productivity and Consumption Data

The literature search for information on abrasive productivity and consumption is reported in our second deliverable on abrasive productivity and performance. The following sources of information were examined:

- SSPC Technical Libraries - These include the complete series of editions of the Journal of Protective Coatings and Linings, Materials Performance, and other technical publications in the field of surface preparation and coating. In addition our technical libraries include a number of conference proceedings from SSPC, NACE and other technical societies such as ASTM. Furthermore our holdings include nearly all of the prominent books and technical reports regarding abrasives, abrasive use, and surface preparation.
- University Library Services - Many of the articles relevant to the subject of abrasive use and abrasive productivity were already available to SSPC through its technical libraries. When articles, reports or books were absent from our technical libraries they were obtained through the library services of the Carnegie Mellon University or the University of Pittsburgh.
- Electronic Information Searches - We performed broad based information retrievals of abstracts for technical articles concerning abrasives, abrasive use, abrasive performance, surface preparation productivity, surface preparation costs and health, safety and environmental impacts of abrasive use in surface preparation.The information on abrasive productivity and consumption rates for different cleaning tasks from these articles was extracted and placed in a spreadsheet database for future use.

A comprehensive literature review based on the retrieved articles has been prepared. This review summarizes the relevant information about abrasive productivity and consumption. It also discusses the importance of abrasive characteristics to abrasive performance. This review contains a comprehensive bibliography.

Over 200 articles relevant to abrasive use and performance are abstracted for review; of these:

- A total of fifty-three articles from JPCL or SSPC conference proceedings are described in an annotated bibliography;
- An additional eighteen technical publications from SSPC or other industry sources are used as reference materials.
- Thirty-seven of these articles or sources are used as primary reference material.

Contents of Report on Abrasive Performance, Productivity and Consumption

The second deliverable consists of 114 pages. It is divided into nine sections. The subject matter covered by each sections is as follows:

- Section I provides introductory information and the report structure.
- Section II describes the major categories and types of abrasives used in shipyards and the most commonly used specifications.
- Section III describes the most significant physical, chemical and performance properties.
- Section IV provide an understanding of the interaction between different abrasive properties and the ability to prepare a surface or productively use an abrasive.
- Section V provides documented or reported productivity measurements for the use of typical abrasives under simulated or real operating conditions.
- Section VI presents the results from a survey of US Shipyards on estimates for production rates in typical surface preparation tasks.
- Section VII presents data on productivity and performance based on a survey of manufacturers (sub-section A) and users of abrasive (sub-section B).
- Section IX provides information on the literature sources discussing surface preparation productivity or production rates.

A.3 Industry Surveys for Abrasive Use and Productivity & Consumption Data

To supplement the information on abrasive performance and consumption retrieved from the technical literature is a set of surveys. These surveys target three distinct audiences. The first audience is the marine and shipbuilding industry. Second, is the general painting industry. Third, are the abrasive manufacturers. In each instance we obtain estimates of abrasive productivity and consumption when conducting defined surface preparation tasks. The definition of these tasks include the following parameters:

- The nature of the original surface coating;
- The degree of cleaning to be achieved;
- The desired profile of the specification;
- The pressure at the abrasive blasting nozzle;
- The size (and type) of abrasive blasting nozzle;
- The identity of the abrasive used, and
- The size of the abrasive used.

This information is entered into a second set of databases. The intention is to compare the median productivity and consumption rate estimates with those found in the technical literature. As part of our survey of manufacturers we also include copies of any documents defining the physical properties of commercially available abrasives.

The results of these surveys become a part of our second deliverable (Section VI) describing abrasive performance, productivity, consumption and characteristics.

A.4 Literature Survey for Pertinent Regulations

Environmental, health, and safety regulations play an important role in shaping many engineering processes, such as surface preparation prior to painting. There are several types of impact seen from regulations on surface preparation.

Regulations can impact on the choice and manner of abrasive usage. For instance, if the resultant waste material is hazardous and difficult to dispose of, a reusable abrasive may be chosen, in order to limit waste generation. Similarly safety and health regulations may limit the use of specific abrasives based on the level of silica (a known hazardous material). If emissions are of concern, then a lower dusting abrasive may be chosen, or the entire process altered to restrict emissions (through the use of containment, for instance).

Review of Regulations Impacting Abrasive Use or Selection

This report contains the following sections:

1. Impact of Regulations on Abrasive Choice and Use

The ways in which regulations can affect abrasive choice and use are described. Particular emphasis is placed on recognizing and controlling hazards from free silica, heavy metals, nuisance dusts and other regulated materials found in abrasives, or generated by abrasive blasting. Following this general discussion the most important health, safety and environmental regulations are summarized, focussing on portions of each regulation relevant to surface preparation or abrasive use. The individual standards discussed are described below.

2. Health and Safety Regulations, Standards and Hazards

The OSHA Marine Industry Standards (29 CFR 1915) is discussed with particular focus on the following areas:

- Exposure to heavy metals (cadmium, arsenic, lead);
- Exposure to respirable silica;
- Medical monitoring program requirements;
- Respiratory protection measures, and
- Confined space working requirements.

3. Navy Specification on Abrasive

The restrictions on radioactive materials, heavy metals, arsenic, and chromium found in MIL-A 22262 B(SH) are described.

4. Specific Health and Safety Hazard

The likelihood of exposure to the identified hazards of silica, heavy metals and to nuisance dusts is explored. This is done by reference to the technical literature and related SSPC studies. Guidance is given on selection of abrasives and surface preparation processes which limit worker exposure.

5. Assessment of Environmental Regulations

A review of the impact of each environmental regulation was presented.

The environmental regulations covered included:

- The Resource Conservation and Recovery Act (RCRA);
- The Clean Air Act (CAA) and amendments;
- The Clean Water Act;
- The Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and
- The Federal Insecticide, Fungicide and Rodenticide Act.

6. Relevant Controls on Abrasive Emissions and Disposal from General Industry Practice

General industry practice for control of abrasive emissions and disposal of abrasive wastes is described in this section. Comparison is also given to marine industry practice when known.

7. Survey of State Environmental Regulations

Some states impose more stringent rules than the federal environmental regulations. A survey was made of the states with the largest numbers of known shipyards to determine what added regulations these shipyards work under.

Overall, the most significant impact of the regulations surveyed are in these four areas of abrasive use:

- Paint removal of materials containing hazardous metals (particularly cadmium or lead);
- Waste disposal of materials generated during abrasive blasting;
- Reduction in free silica containing abrasives, and;
- Restrictions in emissions of nuisance airborne dusts during abrasive blasting.

B. Abrasive Performance and Cost Modeling

A key requirement for the user's guide was to facilitate the process of estimating production rates and surface preparation costs. The approach taken to meet this requirement was the development of abrasive performance and cost models. Raw data on abrasive consumption and productivity provided the cornerstone of our models. This information was organized into databases. These databases were then used as the basis for production of an electronic version of our performance and cost models. These electronic products, along with raw data output constitute our fourth and fifth deliverables.

Originally the expectation was that two separate deliverables would be made. The first deliverable was to be a report, database and data used in performance modeling. A subsequent deliverable would cover the cost modeling database in a similar fashion. During the development of the performance modeling database it became clear that both database modeling applications were closely linked to one another. As a result the two databases were combined.

B.1 Abrasive Consumption and Productivity Databases

Our fourth and fifth deliverables include databases which contain abrasive consumption and surface preparation production rate data. The data sources used for these databases were derived from searches of the technical literature along with surveys of U.S. shipyard paint departments and their abrasive suppliers.

A report was prepared which describes the databases and their content. This report provides information on the process used to acquire, categorize, validate and display information on abrasive performance and abrasive blasting costs. Included in the report are the following sections and subsections:

- Goals of Modeling Tasks
- Database Development Activities
    - Acquisition of Data
    - Modification of Acquired Data
    - Structuring of Databases
- Additions to Database Modules
- Goal Attainment in Modeling Task
    - Suggested Models with Examples
- Future Work
- Appendices

- Tables of Working Data from Databases

The goal of these modeling tasks was to assess the impact of different variables on the production and consumption rates for use of abrasives.

The data for the models was acquired under Tasks 1 through 3 of this project.

B.2 Validation of Data

The original source data used in the productivity and consumption databases came from three information searches. Sources used were:

- SSPC literature (publications and reports);
- Technical literature sources, and
- Results of industry surveys.

Discrepancies were found between the reported production and consumption rates in each information source. It was vital to assess the reliability and validity of the different data sources. First, we compared the variables accounted for in each set of data. Then we merged information from the different data sets. Next, any data gaps were filled by mathematical interpolation, this provided a complete production rate and consumption rate databases. These databases were then consolidated. Finally, the consolidated data set was subjected to a controlled review by both abrasive manufacturers and users. Feedback from this review was used to modify numbers in the consolidated data sets. This process eliminated gaps and discrepancies in the production and consumption rate data.

B.2.1 Variables in the SSPC Literature Data Set

The SSPC data largely came from the two volumes of the Steel Structures Painting Manual, Chapters 2.0 through 2.4 of Volume 1, "Good Painting Practice," and Chapter 2 of Volume 2, "Systems and Specifications." The data on abrasive consumption and production rates from these two volumes accounts for the following parameters:

- The type of surface being cleaned is new, millscale bearing, steel.
- The type of mineral abrasive used is one with a density close to 100 lbs/ft^3. Metallic abrasives have a bulk density close to 300 lbs/ft^3.
- The type of structure cleaned was flat steel plate.
- The production and consumption rate information was obtained under controlled conditions.

The published data in this set only covers a limited range of conditions. It is comparable with a sub-set of data from the other two sources. When comparable conditions from the other two data sets were compared with one another, reasonably close agreement (± 25%) was seen in production and consumption rates.

B.2.2 Variables in Technical Literature Data Set

The technical literature data set provided very wide ranges of production and consumption rates. The data covered a much larger combination of variables. Variables accounted for in this data set include:

- Type of surface - the original surface conditions for which data was available fell into four general categories:

* Light Rust, Light Millscale or Loose Paint. This is a deteriorated surface which requires little effort to clean.

* Tight Rust or Tight Millscale. This is new sheet steel plate.
* Thin Paint or Rusted Thin Paint. This is previously coated steel plate where the coating thickness is no more than 5 mils.
* Thick Paint, Heavy Millscale or Heavily Pitted Rust. This can be steel plate where the coating thickness is greater than 10 mils.

- Coating hardness - the type of coating hardness fell into three general categories:
  * Hard coating - typically a chemically cured coating such as an epoxy or urethane, or zinc-filled coating.
  * Soft coating - typically a more readily deformed surface such as an alkyd, latex, or chlorinated rubber coating.
  * No coating (new millscale bearing steel).
- Level of cleaning achieved fell into four categories:
  * SSPC-SP 5 “White Metal Blast Cleaning.”
  * SSPC-SP 10 “Near White Metal Blast Cleaning.”
  * SSPC-SP 6 “Commercial Blast Cleaning.”
  * SSPC-SP 7 “Brush-Off Blast Cleaning.”
- Profile created could be divided into three categories:
  * Low Profile Range - Between 1.5 and 2.5 mils.
  * Medium Profile Range - Between 2.5 and 4.0 mils
  * High Profile Range - Over 4.0 mils.
- Types of abrasive used fell into the two broad categories of mineral and metallic abrasive. Within the category of mineral abrasives, data was found on ten mineral abrasives. For metallic abrasives, data was found for iron and steel grit, shot, and mixtures of shot and grit.

Most data in the technical literature was obtained under controlled conditions. The pressure at the abrasive blast nozzle, nozzle size, abrasive feed rate and other factors were identified. For some data from the technical literature the conditions of operation were poorly defined. Such poorly defined data from the technical literature was given less weight in our final production and consumption rate databases.

B.2.3 Data from Industry Surveys

Surveys were made of U.S. shipyard painting departments, abrasive manufacturers, and industrial contractors. A common survey instrument was used to obtain production rate and consumption rate data from all parties. The industry surveys attempted to gather data on typical applications, for which performance modeling of abrasives was desired. In the case of shipyards the applications included:

- Preparation of bilges during maintenance;
- Removal of pre-construction primer at weld seams on a new vessel;
- Removal of anti-skid deck coatings;
- Removal of millscale from new plate steel;
- Coating removal from selected non-ferrous surfaces, and
- Other tasks defined by the survey recipient.

The survey recipients were asked to show whether or not the production and consumption rate information was an estimate, or was it obtained under controlled conditions. When producing our production and consumption rate databases, greater weight was given to sources reporting data acquisition under controlled conditions.

When the data did not fit with a pre-defined cleaning task the survey participant was asked to identify the task being performed. This proved useful in categorizing and comparing data from industrial contractors and U.S. shipyards. Typically, industrial contractors reported information for cleaning of complex structural shapes. Shipyards were better able to respond with data fitting one of the pre-defined tasks. Shipyards also provided added task definitions. These new task definitions were incorporated into our final database. Industrial contractor production rates were often lower than those reported by U.S. shipyards. Only when reporting on cleaning of plate and structural steel did the data from industrial and shipyard sources converge.

Data from abrasive manufacturers was used to provide information on abrasive density, size and profile achieved during cleaning.

B.2.4 Merging of Information from Different Data Sets

Having identified the variables in each data set the production and consumption rate information was merged. To achieve a uniform merging of data each data point was tagged with codes representing relevant variables and factors. Data points were tagged to identify the following information:

- Type of surface;
- Coating hardness;
- Level of cleaning achieved;
- Profile created;
- Type and size of abrasive used;
- Operating conditions, (pressure at nozzle and nozzle size);
- Data acquisition parameters (controlled or estimated);
- Source of information (technical literature or survey information);
- Blast cleaning task description, and
- Complexity of surface (flat steel plate or structural steel shapes).

Data from the manufacturer survey was used to add physical characteristics such as size, shape, and density. Task descriptions were divided into twelve categories; see Section B.3, on page 15.

Data was sorted into subsets in which information obtained under identical conditions was directly comparable. The range of values of production or consumption rate within each sub-set was determined. Then the degree of agreement between survey data and technical literature data was determined for sets obtained under controlled conditions. By and large, when survey data obtained under controlled conditions is compared with technical literature data, a reasonably high degree of agreement was seen between the two data sources.

B.2.5 Filling in Gaps in the Data Sets

A performance and consumption rate database model demanded information for cleaning of steel surfaces under a wide variety of conditions. Our review of data sources showed gaps in the recorded information. To help fill in gaps we had to identify relationships between the known data, based on identified variables and then perform an exercise of data interpolation and extrapolation. This exercise used qualified data, such as that from the technical literature, as a benchmark. For instance, data was available which allowed us to assess the influence which the following factors have on abrasive productivity:

- Pressure at the nozzle;
- Nozzle size;

- Abrasive particle median size;
- Coating thickness, and
- Surface/Coating type.

Relationships between production or consumption rates and each of these factors were graphed. These graphs gave mathematical relationships from which production or consumption under other conditions could be calculated.

Production rate data sets were extended by extrapolation to cover conditions of higher nozzle pressure and larger nozzle size. These relationships were non-linear. For instance, production rates may increase 1.5% for each one pound increase in pressure at the nozzle above 100 psi. Thus, an increase in pressure at the nozzle of ten percent (100 psi to 110 psi) can increase production rates by 16%. Gaps in data within a data set were filled by interpolation. Interpolated numbers for production or consumption had to agree with the original relationship identified for the factor being graphed.

Benchmark data on abrasive consumption from the technical literature was dependent on the operating conditions. Consumption is linearly dependent on abrasive bulk density. Filling in gaps in the consumption data for abrasives became a simple computation. Ratios of bulk density were computed between our benchmark abrasives and abrasives with data gaps to develop abrasive consumption information. These ratios were used to extend consumption information beyond the information found from all data sources.

B.2.6 Consolidating Production and Consumption Rate Data

Following the exercise of filling in gaps in the data sets, a revised database was constructed. This database included information for production and consumption rates for thirteen mineral and three reusable abrasives. All original data, and any extrapolated or interpolated data, were included. This resulted in some redundancies in the full data set. To eliminate redundancies we tested the data as follows:

- If the data was acquired under controlled conditions it was retained;
- If the data was estimated, but and within ± 25% of our benchmark or literature data, it was retained;
- If the data showed greater than ± 25% disagreement with our benchmark data it was tagged as questionable.

Questionable data was partitioned from our database.

Data was sorted into sub-groups once again. Where more than one data point existed for a given set of operating and task conditions this data was averaged. A new database was created which contained production and consumption rate information with only one data point for any abrasive under a specific set of operating and task conditions.

B.2.7 External Review of Consolidated Data Sets

The consolidated data set was extensive. Over 12,000 combinations of abrasive type and operating conditions were represented. An external review of the full database content was not feasible. Instead, a representative sub-set of the consolidated data-set was prepared. This sub-set covered the most common operating conditions used in a shipyard setting (nozzle sizes from #6 through #8, ($^{3}/_{8}$-inch to $^{1}/_{2}$-inch diameter,) and pressures at the nozzle from 80 psi to 125 psi). Production and consumption information was given for each combination of pressure at the nozzle and nozzle size. This information was given for a minimum of five abrasive materials. The

abrasive materials were randomized among recipients of this data validation survey. (Abrasive manufacturers always received a copy of data relevant to their product line.) Recipients were asked to comment on whether the data was within ± 25% of the expected value. If the data was within this range then no further modification was given to the data. If the data was outside of acceptable range then the recipient was asked to provide data, obtained under controlled conditions, to change the affected data points.

Values in the database were changed as needed based on the results of this validation survey. This revised version of the database constituted our final version and was used throughout the rest of the project.

B.3 Description of Abrasive Costs Database and Model

The earlier survey on production and consumption rates provided basic data needed to estimate surface preparation costs for twelve shipyard surface preparation tasks. The tasks with production rate and consumption information were:

- Cleaning of New Steel Plate or Steel Shapes - Task A
- Removal of Pre-Construction Primer - Task B
- Refurbishment or Recoating of Anti-Fouling Coatings - Task C
- Total Removal of Anti-Fouling and Anti-Corrosive Hull Coatings - Task D
- Removal or Refurbishment of Existing Deck Coatings - Task E
- Removal or Refurbishment of Coatings from Interior Spaces - Task F
- Removal or Refurbishment of Coatings from Superstructure - Task G
- Removal or Refurbishment of Existing Bilge or Ballast Coatings - Task H
- Cleaning of Machinery Housings - Task I
- Cleaning of Non-ferrous Surfaces (Aluminum, Zinc) - Task J
- Weld Seam Preparation - Task K

Baseline production rate information did not reflect level of difficulty caused by location, or through the use of an alternative surface preparation method.

It was recognized that the degree of difficulty of a surface preparation task plays a role in determining overall efficiency and cost. From the data reported by U.S. shipyards on production and consumption rates for individual tasks, we were able to develop factors that estimated maximum production rates for challenging tasks. These factors account for difficulties caused by the type of structure being prepared, its position and the height of the area in or on the vessel.

The actual method of removal also determines overall efficiency. Multiplication factors were developed to represent the efficiency of an alternative surface preparation process. Such alternative approaches to surface preparation find use when meeting regulatory restrictions.

Examples of the process rate modification factors developed are shown in the Table 1 on page 16.

Examples of the location rate modification factors are shown in Table 2 on page 16

Table 1: Production Rate Modifiers when Meeting Environmental Regulatory Constraints

Engineering Control	Production Rate Modifier	Abrasive Selection Impact	Other Comments
Open Air Abrasive Blasting (standard)	1.0	Typically mineral abrasives chosen	Default method
Wet Abrasive Blasting	0.75	Cannot use metallic abrasives	Clean up needed, flash rusting likely
Low Volume Water Slurry Blasting	0.85	Cannot use metallic abrasives	Lower clean-up than wet abrasive blasting, flash rusting limited
Vacuum Blasting	0.1 - 0.2	Recyclable abrasives preferred	Equipment heavy, production rate falls off with time
Ultra High Pressure Water Jetting (>25,000 psi)	0.25	Abrasive injection rare	No profile production
Vacuum Assisted Power Tool Cleaning (SSPC-SP 11)	0.15	Media described in specification.	Limited range of profile, productivity falls off with time.
Recycling with Containment	0.6	Recyclable abrasives preferred.	Modifier reflects moving and placing containment

Table 2: Production Rate Modifiers Based on Work Location

Location	Production Modifier
Hull Section - Easily Reached	1
Complex Steel Shape - Less than 25ft Elevation	0.75
Hull Section - 26-75 Feet High	0.75
Complex Steel 26-75 Feet High	0.75
Hull Section 76-150 Feet High	0.50
Complex Steel 76-150 Feet High	0.50
Interior Tank Space - Little Structural Steel	0.50
Interior Tank Space - Complex Structural Shapes	0.25

Together, the two sets of location and process modifiers are used to revise production rates for

a defined task and process combination. This revised production rate also affects overall abrasive consumption.

B.4 Final Version of Abrasive Performance and Cost Models

Following revision of the raw data as described in paragraph B.2 on page 11 a final version of the performance and cost models was developed. This included both the production and consumption rate databases, tied to a database module which computed costs based on factors described in paragraph B.3 on page 15. A simple point and click user interface was provided for user input and presentation of modeling results. This interface along with the other database modules comprise a custom application.To model costs using the cost module of the database application requires user input of cost data for labor rates, equipment operating costs, waste disposal costs, and all task information.

This final version of the abrasive performance and cost model database was delivered as an attachment to the written "User’s Guide to Abrasive Selection," described below.

C. Description of the User’s Guide to Abrasive Selection

The guide provides information on the selection of abrasives based on:

- Task Descriptions;
- Cleaning Capability;
- Physical Properties;
- Costs;
- Surface Quality Requirements;
- Productivity in Use
- Safety, and;
- Environmental Impact.

Abrasive blasting may be used for a wide variety of surface preparation tasks during new construction and ship repair. These range from cleaning of preconstruction primer and light rust to removal of thick coatings, heavy rust and marine growth. The market offers a multitude of abrasives from which a user can choose. Some abrasives are used only once, others are recycled. Some abrasives are general purpose while others have more specialized applications.

To choose a suitable abrasive, a user must analyze surface preparation task requirements and match those to the production characteristics of available abrasives. Production characteristics include abrasive productivity, cleaning effectiveness, and cleanliness standards, for both new and recyclable materials. Climactic effects may control the way an abrasive is handled or used. Cost is always an important issue. Costs include the abrasive material, surface preparation equipment and waste disposal. Finally, there is the influence of health and safety, and environmental regulations on the choice or use of an abrasive. Such regulations may lead to different choices of abrasive or surface preparation method. These choices affect the cost for a surface preparation task. This guide simplifies choosing an abrasive. Information about a chosen abrasive reflects available data, industry standards and abrasive test methods. Users can figure out costs for a surface preparation task using the cost model included in the guide.

C.1 Versions of The Guide

The written guide is a text version of the database application containing the productivity and cost databases. All the data on productivity and abrasive consumption contained in this guide come from the database. The guide can be used separately from the database application, or it can

be used in conjunction with the database.

C.2 Contents of the Guide

1. Introduction

This section of the guide provides a description of the major sections in the guide.

2. Using Guide for Estimating Abrasive Production and Consumption Rates

This section of the guide describes how to estimate production rates (sq ft/hr) and consumption rates (lbs/sq ft) for various abrasives. This is done by defining different surface conditions, operating parameters and other factors in an 11 step process: The steps taken are shown in Figure 1 on page 19, along with specific choices at each step.

Step 1 Describe The Surface to be Cleaned. -- Note choice as code number
Step 2 Determine Coating Hardness.. -- Note choice as code number
Step 3 Choose Cleaning Grade. -- Note choice as code number
Step 4 Choose Profile Range. -- Note choice as code number
Step 5 Choose Table with Code Carried Over. (Code number generated by choices made in Steps 1 through 4.)
Step 6 Determine Productivity at Expected Operating Conditions.
Step 7 Compare With Other Disposable Abrasives?
Step 8 Consider Using Recycled Abrasives?
Step 9 If Needed, Identify Alternative Method for Control of Dust Emissions
Step 10 Describe Impact of Work Location and Elevation.
Step 11 Estimate Total Waste Production.

Based on this information a user can:

- Estimate consumption and production rates, for one or more abrasives based on defined conditions using literature data. Data tables are provided for all conditions defined in the guide.
- Compare 2 or more abrasives for above parameters.
- Determine one or more properties of one or more abrasives (e.g., consumption rate, production rate) for specific application.

Figure: 1 Flow Chart for Abrasive Selection

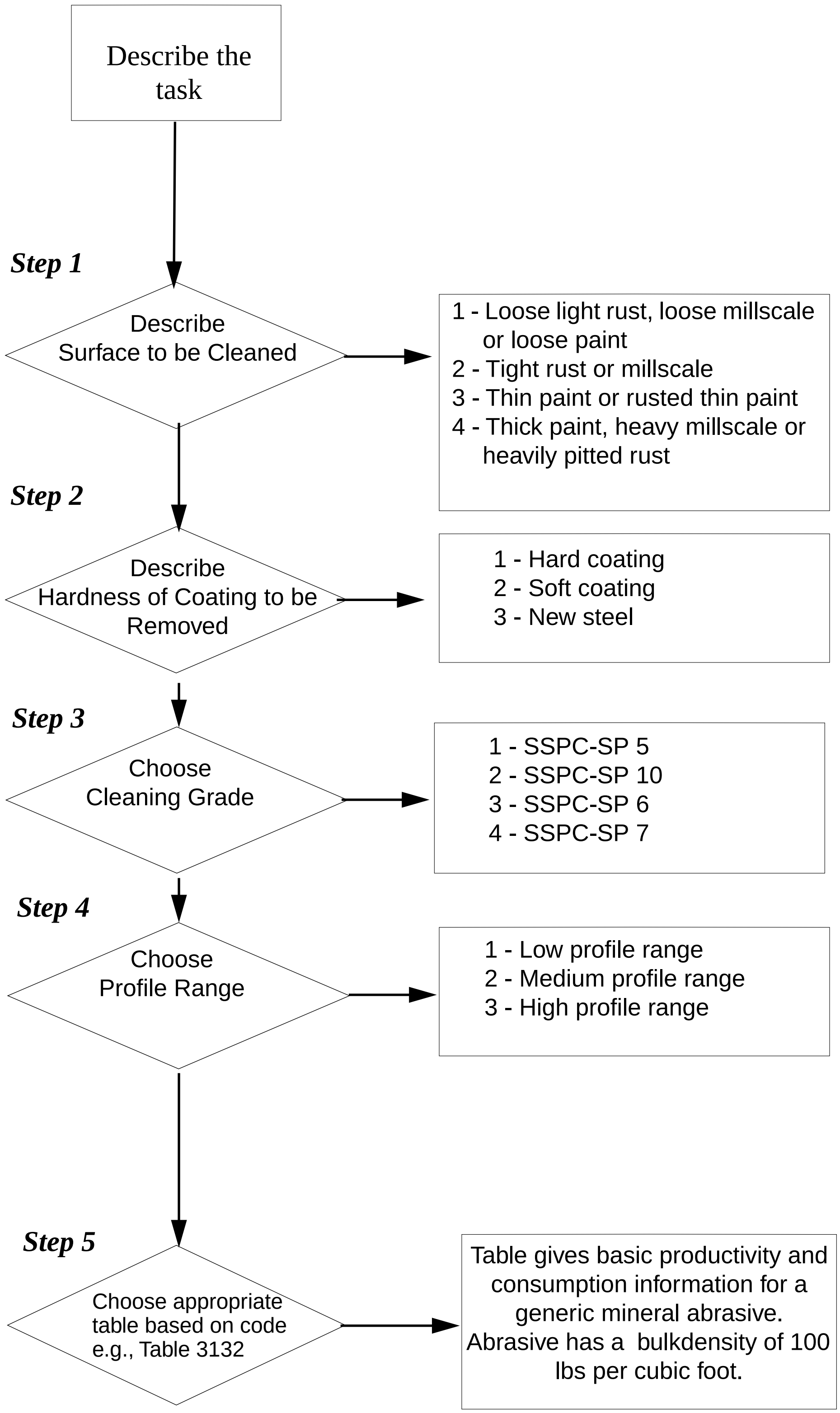
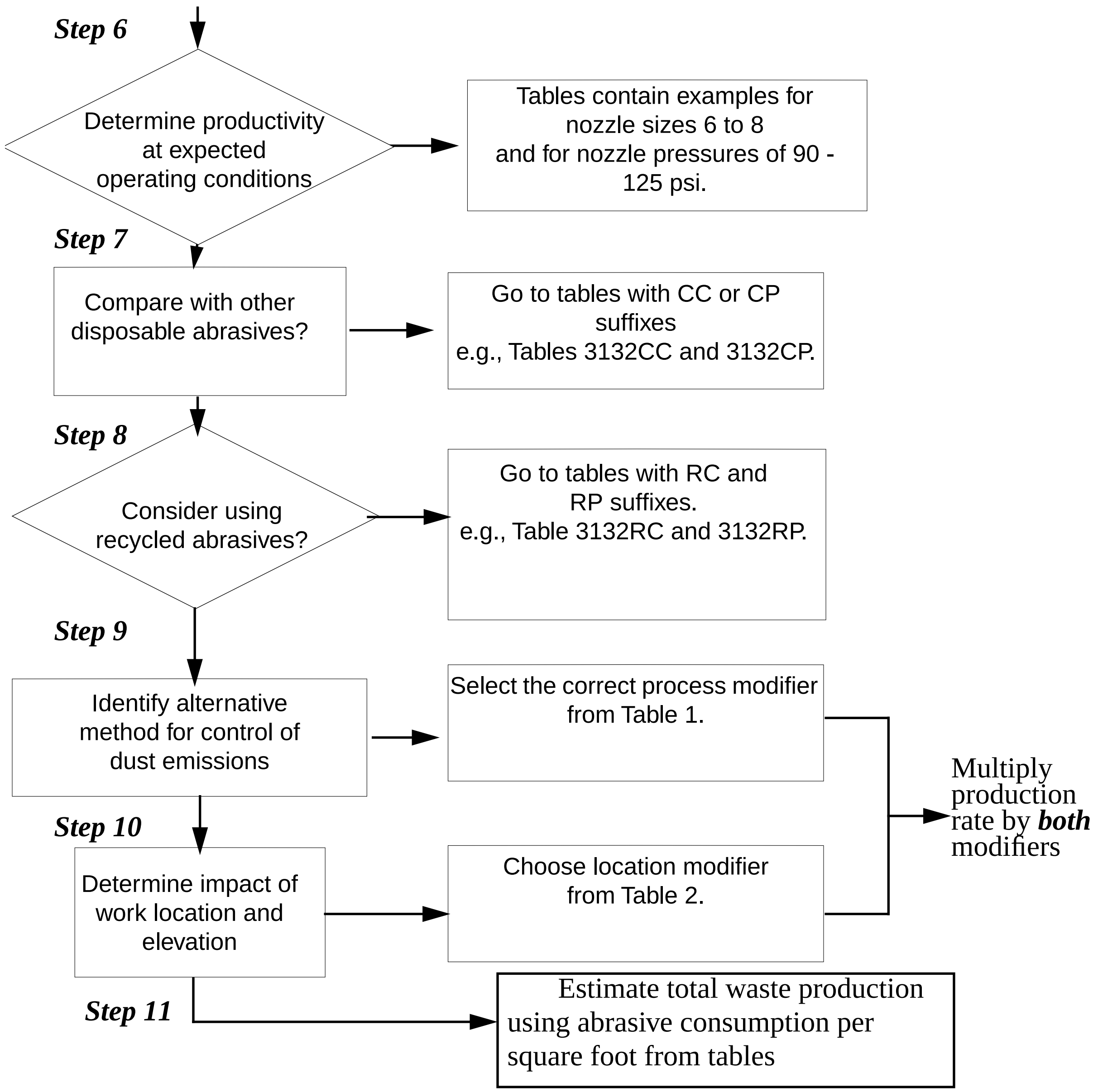


Figure: 1 Flow Chart for Abrasive Selection (Continued)



3. Using Guide to Estimate Costs for a Specific Task

This section contains a brief description of how to take the production and consumption rate information from Section 2 and use this to develop costing for individual surface preparation tasks.

4. Comparing Productivity and Consumption Data with Shipyard Data

One use of the information in the guide and its data tables is to benchmark a surface preparation process. This section provides information on how a shipyard should approach production and consumption rate data gathering. Guidance is also given on measures to take to optimize the surface preparation process.

5. Overview of Abrasives Used at Shipyards

This section describes why abrasives are used in a shipyard setting, the types of tasks requiring abrasives and how abrasives are bought and used.

The types of abrasives covered in the guide include the following types:

- Type I Metallic Abrasive - Sub-Divided into Grit and Shot
- Type II Mineral Abrasives
- Type III Recyclable Mineral Abrasives
- Type IV Organic Media
- Type V Plastic pellets
- Type VI Sponge encapsulated abrasive
- Type VII Sodium bicarbonate slurry
- Type VIII Carbon dioxide pellets

Typical tasks requiring surface preparation or surface treatment covered by the guide include:

- Cleaning of New Steel Plate or Steel Shapes - Task A
- Removal of Pre-Construction Primer - Task B
- Refurbishment or Recoating of Anti-Fouling Coatings - Task C
- Total Removal of Anti-Fouling and Anti-Corrosive Hull Coatings - Task D
- Removal or Refurbishment of Existing Deck Coatings - Task E
- Removal or Refurbishment of Coatings from Interior Spaces - Task F
- Removal or Refurbishment of Coatings from Superstructure - Task G
- Removal or Refurbishment of Existing Bilge or Ballast Coatings - Task H
- Cleaning of Machinery Housings - Task I
- Cleaning of Non-ferrous Surfaces (Aluminum, Zinc) - Task J
- Weld Seam Preparation - Task K
- Degreasing or Oil Removal - Task L

Other influences on abrasive selection include need to reduce waste material volume, to limit the emission of airborne dusts, or to minimize exposure to silica or trace metals from the abrasive. The guide provides tabulated combinations of tasks and suggested abrasive (or alternative surface preparation processes if this is appropriate). Suggested alternate processes include:

- AP I - Portable rotary wheel blasting.
- AP II - High pressure water jetting.
- AP III - Power tool cleaning, without vacuum recovery of dust.
- AP IV - Power tool cleaning, with vacuum recovery of dust.
- AP V - Vacuum abrasive blasting.
- AP VI - Wet abrasive blasting.

These choices suggested by the guide document are shown in Table 3 on page 22.

Table 3: Combination of Tasks and Abrasive or Process Choices

Task Description	Commonly Used Abrasive	Alternative Choice	Choice Based on Waste Reduction	Choice Based on Dust Control
Cleaning of New Steel Plate or Steel Shapes - Task A	Type I	Type II	Type I or Type III	AP VI
Removal of Pre-Construction Primer - Task B	Type I or Type II	AP II or Type II	Type I or Type III	AP II
Refurbishment or Recoating of Anti-Fouling Coatings - Task C	Type II	Type IV	Type III or AP II	AP II
Total Removal of Anti-Fouling and Anti-Corrosive Hull Coatings - Task D	Type II	Type I	Type I, Type III, AP II, or AP VI	AP II
Removal or Refurbishment of Existing Deck Coatings - Task E	AP I (Type I Abrasives)	Type I	AP I	AP I
Removal or Refurbishment of Coatings from Interior Spaces - Task F	AP III	AP IV or AP V	AP IV, APV	AP III
Removal or Refurbishment of Coatings from Superstructure - Task G	Type II	Type I	Type I or Type III	AP VI
Removal or Refurbishment of Existing Bilge or Ballast Coatings - Task H	Type II	Type I	AP II, Type I	AP V
Cleaning of Machinery Housings - Task I	AP III	Type VI or VII	Type VI, AP IV or AP V	AP III
Cleaning of Non-ferrous Surfaces (Aluminum, Zinc) - Task J	Type II (Aluminum Oxide)	Type V	Type VII	AP II
Weld Seam Preparation - Task K	Type II	AP III or IV	AP V	AP V
Degreasing or Oil Removal - Task L	None - SSPC-SP 1 Cleaning Used	Type VI or Type VII	Type VI or Type VII	Type VII

6. Other Factors Affecting Abrasive Selection and Use

This section of the guide provides information about the influence of factors such as abrasive type, regulations and specifications on abrasive choice and procurement. Information is also given on how production and consumption rates are influenced by key variables in the database models. The variables covered include:

- Effect of changing the nozzle size and the pressure at the nozzle;
- Effect of changing the abrasive;
- Effect of changing the profile requirements, and
- Effect of changing the degree of cleaning.

The remainder of the guide consists of a series of appendixes described in brief below.

C.3 Appendices

Appendix 1. Major Factors Affecting Abrasive Selection and Costs

This appendix describes the major factors affecting abrasive selection.

Appendix 2. Relationships and Trade-offs in Abrasive Selections

This appendix provides information similar to that provided earlier in Section 2, but in greater detail.

Appendix 3. Factors Affecting Abrasive Blast Cleaning at Shipyards

Information is given on the role that abrasive type, size, or use can have on production and consumption rates. Also, guidance is given on the merits of alternatives to abrasive blast cleaning.

Appendix 4. Factors Limiting the Selection of Abrasives

These factors include the production rate of the coating process, health, safety and environmental issues, and the cost of the abrasive material itself.

Appendix 5. Equations for Use in Cost Modeling

This appendix presents a fully worked example of how to estimate surface preparation costs is also included.

Appendix 6. Regulatory Factors Affecting Abrasive Selection & Use

This appendix provides background information on regulatory factors affecting abrasive selection and use, such as environmental impact and health and safety considerations during abrasives use.

Tables of Abrasive Productivity & Consumption

The data tables are used in conjunction with the text guide are provided in a separate volume.

4. Economic Benefit to Shipyards

Significant savings can be realized through the efficient use of abrasive blasting. The User's Guide along with the Performance and Cost Models assist a shipyard in performing abrasive blasting efficiently. Both of the SSPC and NSRP studies referenced in footnotes 1 and 2 on page 4 of this report describe how inefficient blast cleaning can increase surface preparation costs by up to 40%. The model described below will help shipyards determine how their operation compares to industry standards, and identify the means to improve their blast cleaning efficiency. It also provides a benchmark for evaluating process improvement efforts.

A comprehensive cost model has been developed which can be used as an adjunct to the guide. Through the use of this cost model one can estimate the impact of changing abrasive blasting operating conditions, such as pressure at the nozzle and nozzle size, on the cost of surface preparation. The cost model also allows the user to compare the use of different abrasives under related operating and process conditions.

A user of the guide can perform cost estimating for surface preparation tasks in one of two ways.

First, as an outline of all the cost components which the user should include in the cost estimate. Illustration of this step by step process is given in the rest of this section.

Second, as a cost modeling database that leads the user through the process of entering all the information needed to estimate the cost of the surface preparation task. All calculations are done by the cost modeling database application without additional user intervention.

Significant cost differences become apparent on changing assumptions which go into a model. Two examples showing significant cost differences are illustrated below in Section C. on page 25. The model depends on over twenty equations. The examples shown in Section C. illustrate typical inputs for cost modeling and the type of final result obtained. The equations for cost modeling are given in Appendix 5 to the Users Guide.

A. Information Needed for Cost Modeling

- Area to be blast cleaned in square feet, (A).
- Average number of hours per shift spent setting up equipment and staging for a work area (H1).
- Length of each shift (H2).
- Number of people per shift performing blast cleaning, (N1).
- Number of people per shift tending blast cleaning equipment, (N2).
- Number of shifts in each work-day (N3).
- Cost of the abrasive (typically in dollars per ton), (M1).
- Cost of labor (labor rates, including all taxes and overheads - $/hr,) (M2)[1]
- Cost of ($/hr) equipment operation, (M3)
- Cost of ($/hr) consumable equipment, (nozzles, hoses etc.), (M4)
- Waste disposal cost (S/Ton) (if a waste is hazardous also include the cost (S/Ton) of waste treatment prior to disposal), (M5)

1. Note that this assumes a constant labor rate for blasters and support personnel.

B. Quantities Computed By The Cost Model

The model computes the following quantities:

- (H3) -- Maximum hours available for surface preparation.
- (N4) -- Number of shifts used to complete a task.
- (N5) -- Total number of expended labor hours.
- (N6) --Total number of hours of equipment operation.
- (M6) -- Total labor cost for surface preparation.
- (M7) -- Total cost of equipment operation.
- (N8) -- Number of tons of abrasive used.
- (M8) -- Total cost of abrasive used.
- (M9) -- Total costs for consumable equipment.
- (M10) -- Total costs for waste disposal.

The details of the computations are given in Appendix 5 to the Users Guide.

C. Cost Model Use Examples

The following examples illustrate the cost estimating process for a job in which there is only one eight hour shift per day. Set-up and close-down takes 1.5 hours of the shift. Under C.1 the job is estimated based on a single use abrasive. Under C.2 the job is estimated based on the use of abrasive recycling.

C.1 Single Use Abrasive Costs

The values used for the various factors are:

- (A) -- Size of area to be blasted in square feet, 50,000 ft^2
- (H1) -- Average number of hours spent setting up equipment and staging for a work area per shift, 1.5 hours.
- (H2) -- Length of each shift, eight hours per shift.
- (N1) -- Number of people performing blasting in each shift, 2 blasters per shift.
- (N2) -- Number of people tending blasting equipment, one tender per shift.
- (N3) -- Number of shifts in each work-day, one shift per day.
- (M1) -- Abrasive cost (typically in dollars per ton), $100 per ton.
- (M2) -- Labor cost (fully burdened labor rates - $/hr), $40 per hour.
- (M3) -- Equipment operation cost ($/hr), $45 per hour.
- (M4) -- Consumable equipment cost, nozzles, hoses etc. - $/hr), $3.00 per hour.
- (M5) -- Waste disposal cost - $/ton), (M5), $30 per ton.
- In this example, the productivity estimate (P) is 250 ft^2 per hour and the estimated consumption rate (C) is 2,000 lbs/hr.

Using the equations shown in Appendix 5 of the Users Guide, the following costs are computed:

- M6 (Total labor cost of surface preparation) = $15,360;
- M7 (Total cost of equipment operation) = $5,760;
- M8 (Total cost of abrasive used) = $20,000;
- M9 (Total costs for consumable equipment) = $600, and
- M10 (Total costs for waste disposal) = $6,000.

Thus, using equation 12 from Appendix 5 of the Users Guide, our cost in dollars for this surface preparation task is:

$$M11(TotalCostofSurfacePreparation) = M6 + M7 + M8 + M9 + M10 = \$\ 47,720 \quad \textbf{(1)}$$

Our cost per square foot for this task is obtained by dividing the total cost (M11) by the area cleaned (A).

$$CostperSquareFootofCleaning = \frac{M11}{A} = \frac{\$\ 47,720}{\$\ 50,000} = \$\ 0.951/(ft)^2 \quad \textbf{(2)}$$

This gives a cost per square foot of \$0.95.

C.2 Recycled Metallic Abrasive Cost

The values used for the various factors are:

- (A) -- Size of area to be blasted in square feet, 50,000 ft^2
- (H1) -- Average number of hours spent setting up equipment and staging for a work area per shift, 1.5 hours.
- (H2) -- Length of each shift, eight hours per shift.
- (N1) -- Number of people performing blasting in each shift, 2 blasters per shift.
- (N2) -- Number of people tending blasting equipment, one tender per shift.
- (N3) -- Number of shifts in each work-day, one shift per day.
- (M1) -- Abrasive cost (typically in dollars per ton), \$500 per ton.
- (M2) -- Labor cost (fully burdened labor rates - \$/hr), \$40 per hour.
- (M3) -- Equipment operation cost (\$/hr), \$50 per hour.
- (M4) -- Consumable equipment cost, nozzles, hoses etc. - \$/hr), \$3.00 per hour.
- (M5) -- Waste disposal cost (\$/ton), (M5), \$30 per ton.
- The productivity estimate (P) is 190 ft^2 per hour and the estimated consumption rate (C) is 30 lbs/hr, (remember this is a recycled metallic abrasive, use rates are far lower when recycling is taken into consideration).

Using the equations shown in Appendix 5 of the User's Guide, the following costs are computed:

- M6 (Total labor cost of surface preparation) = \$15,360;
- M7 (Total cost of equipment operation) = \$6,400;
- M8 (Total cost of abrasive used) = \$1,975;
- M9 (Total costs for consumable equipment) = \$790, and
- M10 (Total costs for waste disposal) = \$118.

Thus, using equation 12 from Appendix 5 of the users guide, our cost in dollars for this surface preparation task is:

$$M11(TotalCostofSurfacePreparation) = M6 + M7 + M8 + M9 + M10 = \$\ 24,643 \quad \textbf{(3)}$$

As before the cost per square foot for this task is obtained by dividing the total cost (M11) by the area cleaned (A).

$$CostperSquareFootofCleaning = \frac{M11}{A} = \frac{\$\ 24,643}{\$\ 50,000} = \$\ 0.48/(ft)^2 \quad \textbf{(4)}$$

This is roughly equal to a cost of \$0.48 per square foot.

5. Conclusions & Recommendations

The user’s guide to selection of abrasives provides significant benefits for shipyard painting departments. The document, along with the database application, delivers a coherent set of production and consumption rate information for a large number of abrasive materials.

The data found in the guide can serve three useful purposes:

1. Determining productivity and consumption rates for various abrasives and conditions;
2. Estimating the cost of a surface preparation task, and;
3. Process improvement exercises by shipyard paint departments.

Implementation of results from report

The following procedure is suggested for a shipyard seeking to benefit from the users guide.

The first application is to run the 11 step model to determine expected productivity and consumption rates based on the types of surface conditions, the specified end conditions, the types of abrasives used, the nozzle size and pressure, and the factors requiring adjustment. As part of this initial exercise the yard can determine if the operating parameters (nozzle size and pressure) are appropriate for the task being undertaken. The yard may also be able to determine if there is pra prospect for improving the operation by selecting an alternate abrasive for certain shipyard tasks.

A second use of the guide is to estimate the abrasive blast cleaning costs using the model’s cost estimating features. These can be compared with the yards’ own cost of surface preparation This exercise will require the yard to examine the blast cleaning process to determine factors such as the typical time for set up, and to consider the other advantages of altering the operating parameters.

In order for the yard to achieve significant improvement, it is important to determine the existing production and consumption rates, based on procedures outlined in the guide. These can be compared to industry norms and also can be used as benchmarks for improving the operations.

Suggested Follow-up Activities

The user’s guide does not address the training of workers to use abrasives efficiently. This type of guidance goes beyond the scope of the user’s guide. It is strongly suggested that either SNAME SP3, or the panel responsible for training programs within SNAME, address this issue in a follow-up to this project.

6. Supplementary Materials and Their Availability

This section identifies the project deliverables. Also, summaries are given of shipyard surveys and abrasive material specifications.

A. User’s Guide to Selection of Abrasives

The User’s Guide is the primary work product of the project. It is distributed by the NSRP.

B. Complete Listing of Project Deliverables

The seven deliverables are:

Deliverable 1: A report summarizing the different types of abrasives, industry specifications and consensus standards defining each abrasive type. A review of abrasive specifications is given in Section D, below.

Deliverable 2: A report describing the performance properties of different abrasive types. The report contains productivity and consumption data gathered from both a technical literature review, and surveys of abrasive manufacturers and shipyards. A summary of shipyard surveys is given in Section C, below.

Deliverable 3: A report describing the regulatory impact on abrasive selection and use from health, safety and environmental regulations. The report contains information about respiratory effects of different types of abrasive and also addresses waste disposal issues.

Deliverable 4: This report describes a process for modeling the abrasive productivity and consumption in typical shipyard applications. The data used to create the report is taken from the earlier industry surveys and technical literature sources identified in deliverable 2.

Deliverable 5: This report describes a second modeling exercise in which costs associated with abrasive use are assessed. This builds on the data contained in deliverable 4 and creates a cost model for surface preparation. Using the model, estimates of the costs for typical surface preparation tasks are made.

Deliverable 6: This guide to abrasive selection provides a user with a way to make abrasive selections based on their knowledge of the surface preparation task. The productivity and consumption information shown with the guide come from databases created for deliverables 4. Guidance on cost estimating is based on the model database created for deliverable 5

Deliverable 7: This report describes how the project was conducted and its key deliverables.

C. Data from Shipyard Surveys

Four shipyards responded to the survey of abrasive use. The survey asked for the abrasives used in surface preparation of various parts of the ship for both a total repaint and a partial repaint. Abrasive types were divided into metallic and non-metallic. Another question asked was whether the abrasive was recovered continuously or whether it was recovered after the blast. The results of this survey are tabulated for each shipyard, (Tables 4 - 7).

The responding shipyards are labelled as Shipyards A through D. The general location of these yards is as follows:

- Shipyard A is a gulf coast shipyard located in Louisiana;
- Shipyard B is located in the north-east United States;
- Shipyard C is located in Virginia;
- Shipyard D is located near the Great Lakes in Michigan.

To simplify shipyard responses and facilitate comparison of data the survey asked that answers conform to the following definitions:

Painting Task to be Performed

- Complete Repaint - Total removal of all coatings down to bare metal.
- Partial Repaint - Removal of loose paint and loose rust, (such as refurbishment of hull anti-foulant coatings).

Surface Preparation Process

- Non-metallic Continuous Recovery - Abrasive blast cleaning with mineral or organic abrasives. The process is accompanied by continuous recovery of abrasive grit for recycling and reuse.
- Non-metallic Post-blast Recovery - Abrasive blast cleaning with recovery of mineral or organic blast media at the end of a blast cleaning session for final disposal.
- Metallic Continuous Recycling - Abrasive blast cleaning with metallic abrasives with continuous recovery and reuse of material, (such as cleaning of plate steel or metal parts in a blast room).

Only shipyard A (Table 4) uses a different abrasive for a complete repaint than for a partial repaint. For complete repaint, steel shot with continuous recovery is the method of choice. However, for the partial repaint, the non-metallic abrasives, staurolite or coal slag, are used and are recovered after the blast for disposal. The same abrasive is used on all parts of the ship except for aluminum surfaces, which are chemically cleaned.

Shipyard B (Table 5) is the only one of the four shipyards that uses recyclable non-metallic abrasives. Garnet and/or aluminum oxide abrasives are used on underwater hull/ boottop, exterior topside, superstructures, and aluminum surfaces. Steel shot is used on decks and steel grit is used on tanks and interior surfaces.

Shipyard C (Table 6) uses garnet or coal slag with post-blast recovery on almost every part of the ship. Sometimes continuously recycled steel shot is used on the non-skid decks. Aluminum surfaces are cleaned with aluminum oxide or high pressure water jetting (HPWJ). Shipyard C also uses baking soda as the abrasive or HPWJ in specialized areas (such as steel motor housings).

Except for cleaning fuel tanks with HPWJ, Shipyard D (Table 7) cleans every part of the ship with coal slag. Whether the job is a full or partial repaint, the surface is blasted with coal slag, which is then recovered after the blast and discarded. There is no re-use of abrasive. Shipyard D did not indicate their preferred method for cleaning aluminum surfaces.

Note: Tables 1 through 3 are located in Section 3: Description of Project Tasks and Deliverables, beginning on page 6.

Table 4: Survey of Abrasive Practice at Shipyard A

	COMPLETE REPAINT[a]			PARTIAL REPAINT[b]		
	Non-Metallic Continuous Recovery[c]	Non-Metallic Post-blast Recovery[d]	Metallic Continuous Recycling[e]	Non-Metallic Continuous Recovery	Non-Metallic Post-blast Recovery	Metallic Continuous Recycling
Underwater Hull/Boottop (with organotin AF paint)			steel grit		staurolite coal slag	
Underwater Hull/Boottop (with organotin-free paint)			steel grit		staurolite coal slag	
Exterior Topside			steel grit		staurolite coal slag	
Decks Non-Skid			steel grit		staurolite coal slag	
Decks Other Coatings			steel grit		staurolite coal slag	
Superstructures			steel grit		staurolite coal slag	
Ballast or Bilge Tanks			steel grit		staurolite coal slag	
Fuel Tanks			steel grit		staurolite coal slag	
Interior Hulls			steel grit		staurolite coal slag	
Potable Water Tanks			steel grit		staurolite coal slag	
FRP Domes and Other Composite Surfaces			steel grit		staurolite coal slag	
Aluminum Entrances and Other Surfaces[f]						
Miscellaneous Surfaces and Substrates			steel grit		staurolite coal slag	

a. Complete Repaint - Total removal of all coatings down to bare metal.
b. Partial Repaint - Removal of loose paint and loose rust, (such as refurbishment of hull anti-foulant coatings).
c. Abrasive blast cleaning with mineral or organic abrasives. The process is accompanied by continuous recovery of abrasive grit for recycling and reuse.
d. Abrasive blast cleaning with recovery of mineral or organic blast media at the end of a blast cleaning session for final disposal.
e. Abrasive blast cleaning with metallic abrasives with continuous recovery and reuse of material, (such as cleaning of plate steel or metal parts in a blast room).
f. Chemical cleaning and paint removal are used on aluminum surfaces for both complete and partial repaint.

Table 5: Survey of Abrasive Practice at Shipyard B

	COMPLETE REPAINT			PARTIAL REPAINT		
	Non-Metallic Continuous Recovery	**Non-Metallic Post-blast Recovery**	**Metallic Continuous Recycling**	**Non-Metallic Continuous Recovery**	**Non-Metallic Post-blast Recovery**	**Metallic Continuous Recycling**
Underwater Hull/Boottop (with organotin AF paint)						
Underwater Hull/Boottop (with organotin-free paint)	garnet			garnet		
Exterior Topside	garnet Al oxide			garnet Al oxide		
Decks Non-Skid			steel shot			steel shot
Decks Other Coatings			steel shot			steel shot
Superstructures	garnet			garnet		
Ballast or Bilge Tanks			steel grit			steel grit
Fuel Tanks			steel grit			steel grit
Interior Hulls			steel grit			steel grit
Potable Water Tanks			steel grit			steel grit
FRP Domes and Other Composite Surfaces						
Aluminum Entrances and Other Surfaces	garnet Al oxide			garnet Al oxide		
Miscellaneous Surfaces and Substrates	garnet Al oxide			garnet Al oxide		

Table 6: Survey of Abrasive Practice at Shipyard C

	COMPLETE REPAINT			PARTIAL REPAINT		
	Non-Metallic Continuous Recovery	**Non-Metallic Post-blast Recovery**	**Metallic Continuous Recycling**	**Non-Metallic Continuous Recovery**	**Non-Metallic Post-blast Recovery**	**Metallic Continuous Recycling**
Underwater Hull/Boottop (with organotin AF paint)		garnet coal slag			garnet coal slag	
Underwater Hull/Boottop (with organotin-free paint)		garnet coal slag			garnet coal slag	
Exterior Topside		garnet coal slag			garnet coal slag	
Decks Non-Skid		garnet	steel shot		garnet coal slag	steel shot
Decks Other Coatings		garnet coal slag			garnet coal slag	
Superstructures		garnet coal slag			garnet coal slag	
Ballast or Bilge Tanks		garnet coal slag			garnet coal slag	
Fuel Tanks		garnet coal slag			garnet coal slag	
Interior Hulls		garnet coal slag			garnet coal slag	
Potable Water Tanks		garnet coal slag			garnet coal slag	
FRP Domes and Other Composite Surfaces		garnet coal slag			garnet coal slag	
Aluminum Entrances and Other Surfaces[a]		Al oxide			Al oxide	
Miscellaneous Surfaces and Substrates[a]		garnet baking soda coal slag			garnet coal slag	

a. High pressure water jetting (HPWJ) is used on miscellaneous surfaces and substrates for complete repainting and on aluminum surfaces for partial repaint.

Table 7: Survey of Abrasive Practice at Shipyard D

	COMPLETE REPAINT			PARTIAL REPAINT		
	Non-Metallic Continuous Recovery	Non-Metallic Post-blast Recovery	Metallic Continuous Recycling	Non-Metallic Continuous Recovery	Non-Metallic Post-blast Recovery	Metallic Continuous Recycling
Underwater Hull/Boottop (with organotin AF paint)		coal slag			coal slag	
Underwater Hull/Boottop (with organotin-free paint)		coal slag			coal slag	
Exterior Topside		coal slag			coal slag	
Decks Non-Skid		coal slag	steel shot		coal slag	steel shot
Decks Other Coatings		coal slag			coal slag	
Superstructures		coal slag			coal slag	
Ballast or Bilge Tanks		coal slag			coal slag	
Fuel Tanks[a]						
Interior Hulls		coal slag			coal slag	
Potable Water Tanks		coal slag			coal slag	
FRP Domes and Other Composite Surfaces		coal slag			coal slag	
Aluminum Entrances and Other Surfaces						
Miscellaneous Surfaces and Substrates		coal slag			coal slag	

a. High pressure water jetting (HPWJ) is used on fuel tanks for both complete repainting for partial repaint.

D. Specifications and Standards for Blast Cleaning Abrasives

A comparison of all abrasive specifications reviewed during the production of deliverable item 1 is given in this section. The comparison begins with a listing of relevant specifications for mineral and metallic abrasives. Table 8 shows the listing of International Organization for Standardization (ISO) abrasive specifications for metallic abrasives, following which in Table 9 are the ISO specifications for mineral abrasives.

Table 8: ISO Metallic Abrasive Specifications

Designation	Title	Availability
ISO 11124	**Specification for metallic blast-cleaning abrasives**	
Part 1	General introduction and classification	yes
Part 2	Chilled-iron grit	yes
Part 3	High-carbon cast-steel shot and grit	yes
Part 4	Low-carbon cast-steel shot	yes
Part 5	Cut steel wire	no[a]
ISO 11125	**Test methods for metallic blast-cleaning abrasives**	
Part 1	Sampling	yes
Part 2	Determination of particle size distribution	yes
Part 3	Determination of hardness	yes
Part 4	Determination of apparent density	yes
Part 5	Determination of percentage defective particles and of microstructure	yes
Part 6	Determination of foreign matter	yes
Part 7	Determination of moisture	yes
Part 8	Determination of abrasive mechanical properties	no

a. The denotation of "no" for standard availability indicates that a draft standard is under review by the responsible ISO Technical Committee.

Table 9: ISO Specifications for Mineral Abrasives

ISO 11126	**Specifications for non-metallic blast-cleaning abrasives**	
Part 1	General introduction and classification	yes
Part 2	Silica sand	no
Part 3	Copper refinery slag	yes
Part 4	Coal furnace slag	yes
Part 5	Nickel refinery slag	yes
Part 6	Iron furnace slag	yes
Part 7	Fused aluminum oxide	yes
Part 8	Olivine sand	yes
Part 9	Staurolite	no
Part 10	Garnet	no
ISO 11127	**Test methods for non-metallic blast-cleaning abrasives**	
Part 1	Sampling	yes
Part 2	Determination of particle size distribution	yes
Part 3	Determination of apparent density	yes
Part 4	Assessment of hardness by a glass slide test	yes
Part 5	Determination of moisture	yes
Part 6	Determination of water-soluble contaminants by conductivity measurement	yes
Part 7	Determination of water-soluble chlorides	yes
Part 8	Determination of abrasive mechanical properties	no

Table 10 presents selected definitions common to all abrasive materials used. Table 11 includes definitions unique to metallic abrasives, while Table 12 contains unique definitions for mineral abrasives as used in ISO specifications. Common abbreviations for abrasive material types, along with the profile expectations, taken from ISO specifications are shown in Table 13.

Table 10: Selected ISO Definitions for Any Abrasive Materials

Term	Definition
blast-cleaning abrasive:	Solid material intended to be used for abrasive blast-cleaning.
abrasive blast-cleaning:	Impingement of a high-kinetic-energy stream of blast-cleaning abrasive on to the surface to be prepared.
shot:	Particles that are predominantly round, that have a length of less than twice the maximum particle width and that do not have edges, broken faces or other sharp surface defects.
grit:	Particles that are predominantly angular, that have fractured faces and sharp edges and that are less than half-round in shape.
cylindrical:	Sharp-edged particles, having a diameter to length ratio of 1:1, cut so that their faces are approximately at right angles to their centerline.
defect:	A fault or weakness in an abrasive which, if present at or above a given level, may be detrimental to the performance of the abrasive.
void:	A smooth-surfaced internal cavity considered undesirable when greater than 10% of the cross-sectional area of a particle.
shrinkage defect:	An internal cavity with a rough dendritic surface or zone of microporosity, considered undesirable when greater than 40% of the cross-sectional area of a particle.
crack:	A linear discontinuity that has a length-to-width ratio of 3:1 or greater, that extends over more than 20% of the diameter or shortest dimension of a particle and that is radial in direction.
foreign matter:	Any material or particles mixed with the abrasive which are not attached to the abrasive particles and which are nonmagnetic.

Table 11: Selected ISO Definitions for Metallic Abrasive Materials

Term	Definition
chilled-iron grit:	A metallic blast-cleaning abrasive produced by crushing various chilled-iron shot sizes into sharp-edged angular particles.
chilled iron shot:	A metallic blast-cleaning abrasive produced by a casting process in which molten iron is formed into shot by means of an atomization process.
high-carbon cast-steel shot:	A metallic blast-cleaning abrasive produced by a casting process in which molten high-carbon steel is formed into shot by means of an atomization process.
high-carbon cast-steel grit:	A metallic blast-cleaning abrasive produced by crushing various high-carbon cast-steel shot sizes into sharp-edged angular particles.
low-carbon cast-steel shot:	A metallic blast-cleaning abrasive produced by a casting process in which molten low-carbon steel is formed into shot by means of an atomization process.

Table 12: Selected ISO Definitions for Mineral Abrasives

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>copper refinery slag:</td><td>A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from copper smelting. It is basically iron silicate slag.</td></tr>
<tr><td>coal furnace slag:</td><td>A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing, from slag originating when coal is burned in coal-fired power stations. It is basically aluminum silicate slag.</td></tr>
<tr><td>nickel refinery slag:</td><td>A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from nickel smelting. It is basically iron silicate slag.</td></tr>
<tr><td>iron furnace slag:</td><td>A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from iron smelting. It is basically calcium silicate slag.</td></tr>
<tr><td>fused aluminum oxide:</td><td>A synthetic mineral blast-cleaning abrasive, which is classified as two types, A and WA.</td></tr>
<tr><td colspan="2">Type A is mainly composed of crystalline corundum which is brown in color and consists of a solid solution containing a minimum of 94% aluminum oxide and a maximum of 4% titanium dioxide. Type A is produced by fusing bauxite with the appropriate quantity of titanium dioxide and reducing agent in an electric furnace, cooling to form lumps and then crushing and sieving to size.</td></tr>
<tr><td colspan="2">Type WA consists of crystalline corundum which is whitish in color and contains at least 99% aluminum oxide. It is produced by fusing, in an electric furnace, pure aluminum oxide and is refined.</td></tr>
<tr><td>olivine sand:</td><td>A mineral manufactured from the naturally occurring mineral olivine which is crushed by a mechanical process, dried and sieved and prepared for use as a blast-cleaning abrasive. Olivine is a magnesium/iron silicate with the chemical formula $MgO{\cdot}SiO_2{\cdot}Fe_2O_3$ (Mg, Fe)Si2O4.</td></tr>
<tr><td>staurolite mineral:</td><td>A naturally occurring mineral sand, staurolite, which is mined, concentrated, scrubbed, dried, and further purified using high-intensity electrostatic and magnetic processes, and prepared for use as a blast cleaning abrasive. Staurolite is an iron/aluminum silicate with the chemical formula $FeAl_5SiO_{12}OH$.</td></tr>
<tr><td>garnet:</td><td>A material manufactured from the naturally occurring mineral, garnet, which is dried and sieved, with or without mechanical crushing, and prepared for use as a blast cleaning abrasive. There are two significantly different garnet minerals used for blast cleaning. Almandite garnet is an iron aluminum silicate with the chemical formula $Fe_3Al_2\ (SiO_4)_3$. Andradite garnet is a calcium iron silicate with the chemical formula $Ca_3Fe_2\ (SiO_4)_3$. These garnet abrasives differ in appearance, hardness, specific gravity, and other properties.</td></tr>
</table>

Table 13: Commonly Used Blast Cleaning Abrasives for Steel Substrate Preparation

Type			Abbreviation	Initial Particle Shape	Particle Shape Comparator[a]	Specification
Metallic (ISO 11124)	Cast Iron	Chilled	M/CI	G	G	ISO 11124-2
	Cast Steel	High-carbon	M/HCS	S or G	S[b]	ISO 11124-3
		Low-carbon	M/LCS	S	S	ISO 11124-4
	Cut Steel Wire	-	M/CW	C	S[b]	ISO 11124-5[c]
Natural (non-metallic) (ISO 11126)	Silica Sand		N/SI	G	G	ISO 11126-2[c]
	Olivine Sand		N/OL	G	G	ISO 11126-8
	Staurolite		N/ST	S/G	S	ISO 11126-9[c]
	Garnet		N/GA	G	G	ISO 11126-10[c]
Synthetic (non-metallic) (ISO 11126)	Iron Furnace Slag	(Calcium silicate slags)	N/FE	G	G	ISO 11126-6
	Copper Refinery Slag	(Ferrous silicate slags)	N/CU	G	G	ISO 11126-3
	Nickel Refinery Slag	(Ferrous silicate slags)	N/NI	G	G	ISO 11126-5
	Coal Furnace Slag	(Aluminum silicate slags)	N/CS	G	G	ISO 11126-4
	Fused Aluminum Oxide		N/FA	G	G	ISO 11126-7

Particle shape designation	ISO 8503-2
Shot - round	(S)
Grit - angular, irregular	(G)
Cylindrical - sharp-edged	(C)

a. A comparator is to be used when assessing the resultant surface profile. The method is described in the ISO 8503-2 specification. The classes of abrasive shape from ISO 8503-2 are given in the lower section of this table. These classes of abrasive shape are used to label the corresponding surface profile comparator suggested in ISO 8503-2.

b. Certain abrasives change shape rapidly when used. The appearance of the profile approaches that of the "shot" comparator.

c. As of November 1997, ISO abrasive specifications had not been issued for Cut Steel Wire, Staurolite, Garnet or Silica Sand.

Table 14: ISO Metallic Blast Cleaning Abrasives Hardness Requirements

Abrasive	Hardness[a] (Vickers) HV
Chilled-iron grit	650 minimum
High-carbon cast-steel shot	390 to 530
High-carbon cast-steel grit Five discrete ranges of hardness defined.	390 to 530 470 to 610 570 to 710 700 minimum
Low-carbon cast-steel shot	390 to 520

a. Hardness is measured with ISO Standard 11125-3

Hardness requirements for metallic abrasives, taken from ISO specifications are shown above in Table 14, and particle size shape requirements are shown below in Table 15. High carbon steel grit has five ranges of hardness. These ranges have their origins in the abrasive hardness ranges for high-carbon steel grit in the Society of Automotive Engineers (SAE) J1993 recommended practice for cast steel grit. SAE J1993 contains three hardness ranges, roughly corresponding to HV ranges 390 to 530, 530 to 700 and 700 minimum values. European practice is to span hardness ranges as shown in first three hardnesses for high-carbon cast steel grit. The four ranges defined in the resulting ISO 11124-3 standard are a compromise to minimize commercial disruption to the European and U.S. metallic abrasive industries. The fourth range of HV 700 minimum was retained to maintain U.S. specification compliance following issuance of the ISO 11124-3 standard. Composition requirements for ISO metallic abrasives are shown in Table 16 on page 41. The ISO specifications for metallic abrasives are directly modeled on the respective SAE specifications in all regards except sizing. A comparison of sizing information is given later in Table 23 on page 46 for SAE, ISO, Steel Founder's Society of America, (SFSA) and Deutsche Indutsrie Norm, (DIN) specifications.

Table 15: ISO Particle Requirements for Metallic Blast-Cleaning Abrasives

	Type of metallic abrasive (ISO 11124)				
Property	**Chilled-iron Grit (11124-2)**	**High-carbon cast-steel Shot (11124-3)**	**High-carbon cast-steel Grit (11124-3)**	**Low-carbon cast-steel Shot (11124-4)**	**Test method**
Defects					ISO 11125-5
Particle shape	max. 10% shot or more than half-round	max. 5% non-round	max. 10% shot or more than half-round for grit up to 700 HV; max. 5% for grit above 700 HV	max. 15% non-round	
Voids	max. 10%	max. 10%	max. 10%	max. 15%	
Shrinkage defect	max. 10%	max. 10%	max. 10%	max. 5%	
Cracks	max. 40%	max. 15%	max. 40%	none	
Total defects	max. 40%	max. 20%	max. 40%	max. 20%	
Particles with more than one of the above defects shall be counted only once in this total.					

Table 16: ISO Composition Requirements for Metallic Blast-Cleaning Abrasives

<table>
<tr><th></th><th colspan="5">Type of metallic abrasive (ISO 11124)</th><th></th></tr>
<tr><th>Property</th><th>Chilled-iron
Grit (11124-2)</th><th>High-carbon
cast-steel Shot
(11124-3)</th><th>High-carbon
cast-steel Grit
(11124-3)</th><th>Low-carbon cast-
steel Shot (11124-4)</th><th>Test method</th></tr>
<tr><td>Structure</td><td>Chilled-iron grit abrasives shall have a white iron type microstructure of iron carbide in martensite. Partial decarburization, free graphite or ferrite shall be less than 5% in any single particle. (Note 1)
No more than 15% of the particles tested shall have undesirable microstructure.</td><td colspan="2">Cast-steel shot and grit abrasives shall have a uniform martensite and/or bainite microstructure, tempered to a degree consistent with the hardness range, with fine, well-distributed carbides, if any. Partial decarburization, carbide networks and interdendritic grain boundary segregation with high-temperature transformation products such as pearlite are undesirable.
No more than 15% of the particles tested shall have undesirable microstructure.</td><td>Low-carbon cast-steel shot abrasives shall have a bainitic or martensitic structure. (Note 1)
No more than 15% of the particles tested shall have undesirable microstructure.</td><td>ISO 11125-5</td></tr>
<tr><td>Chemical Composition</td><td>min. 1.7% (m/m) carbon content in the finished product</td><td colspan="2">Carbon 0.80% to 1.2% (m/m)
Manganese 0.35% to 1.2% (m/m)
Silicon min. 0.4% (m/m)
Sulfur max. 0.05% (m/m)
Phosphorus max. 0.05% (m/m)
The manganese content shall be sufficiently high to achieve the required hardness throughout the section of all particles.</td><td>Carbon 0.08 to 0.20%
Manganese 0.35 to 1.50%
Silicon 0.10 to 2.00%
Sulfur max. 0.05%
Phosphorus max. 0.05%</td><td>ISO 9556
ISO 629

ISO 439
ISO 4935
ISO 10714</td></tr>
<tr><td rowspan="2">Hardness</td><td rowspan="2">90% of the particles tested shall have a hardness above 650 HV. (Note 2)</td><td colspan="2">90% of the particles tested shall have a hardness within one of the ranges specified below: (Note 3)</td><td rowspan="2">90% of the particles tested shall have a hardness range of 390 to 520 HV. (Note 2)</td><td rowspan="2">ISO 11125-3</td></tr>
<tr><td>390 to 530 HV</td><td>390 to 530 HV
470 to 610 HV
570 to 710 HV
700 HV minimum</td></tr>
<tr><td>Apparent density</td><td colspan="4">min. 7000 kg/m^3 (7.0 kg/dm^3)</td><td>ISO 11125-4</td></tr>
<tr><td>Foreign matter (including slag)</td><td colspan="4">Max. 1% (m/m)</td><td>ISO 11125-6</td></tr>
<tr><td>Moisture</td><td colspan="4">max. 0.2% (m/m)</td><td>ISO 11125-7</td></tr>
</table>

Below begins a series of tables describing properties of mineral abrasives. Unlike the ISO specifications for metallic abrasives the corresponding U.S. military or industry specifications are not directly equal to the ISO specifications. Table 17 on page 42 summarizes composition and fundamental characteristic requirements for the mineral abrasives described in specifications under ISO designation 11126. Table 18 on page 42 provides a point of comparison with the requirements for mineral abrasives in SSPC-AB 1, “Specification for Mineral and Slag Abrasives.” Table 19 on page 43 compares the common property requirements of SSPC-AB 1 with the various parts of ISO 11126. These property requirements are then compared with those found in MIL-22262B(SH), “Abrasive Blasting Media, Ship Hull Blast Cleaning.” Another military speci-

fication of importance to the shipbuilding industry is MIL-G5634-C, (superseded by A-A-1722 - GRAIN, ABRASIVE (SOFT BLASTING),) this covers requirements for agricultural by-product abrasives.

Table 17: ISO Requirements for Non-Metallic Blast Cleaning Abrasives

Property		Copper Refinery Slag (11126-3)	Coal Furnace Slag (11126-4)	Nickel Refinery Slag (11126-5)	Iron Furnace Slag (11126-6)	Fused Aluminum Oxide (11126-7)	Olivine Sand (11126-8)	Test Method	Staurolite[a]	Garnet[a.]
Particle size range and distribution		See Table 20						ISO 11127-2	See Table 20	
Apparent density	kg/m^3	3300 to 3900	2400 to 2600	3300 to 3900	3000 to 3300	3900 to 4000	3000 to 3300	ISO 11127-3	2100 to 2300	3100 to 4100
	[kg/ dm^3]	[3.3 to 3.9]	[2.4 to 2.6]	[3.3 to 3.9]	[3.0 to 3.3]	[3.9 to 4.0]	[3.0 to 3.3]		[2.1 to 2.3]	[3.1 to 4.1]
Mohs hardness		min. 6	min. 6	min. 6	min. 6	min. 6	min. 6	ISO 11127-4	min. 5.5	min. 6
Moisture	% (m/m)	max 0.2	max 0.2	max 0.2	max 0.2	max 0.2	max 0.2	ISO 11127-5	max 0.1	max 0.2
Conductivity of aqueous extract (mS/m)		max. 25	max. 25	max. 25	max. 25	max. 25	max. 25	ISO 11127-6	max. 25	max. 25
Water-soluble chlorides% (m/m)		max. 0.0025	max. 0.0025	max. 0.0025	max. 0.0025	max. 0.0025	max. 0.0025	ISO 11127-7	max. 0.0025	max. 0.0025

a. As of December, 1997, ISO 11126, Part 2: Silica sand, Part 9: Staurolite and Part 10: Garnet have not been issued.

Table 18: SSPC-AB 1[1] Requirements for Non-Metallic Blast Cleaning Abrasives

Properties	Requirement		Test Procedure
	min.	max.	
Specific gravity	2.5		ASTM C 128
Hardness	6		Mohs scale
Weight change on ignition	-1.0%	+0.05%	Heat to 750° C (1382° F)
Water soluble contaminant		1000 µS/cm	ASTM D 4940
Moisture content		0.5%	ASTM C 566
Oil content		none	Observe surface of water extract.

1. Steel Structures Painting Council specification SSPC-AB 1, Mineral and Slag Abrasives.

Table 19: ISO, SSPC and Military Specifications Compared - Mineral Abrasives

Requirement	ISO	SSPC	Military[c]	Method
Crystalline Silica	Varies	3 Classes Allowed: A - <1.0%; B - <5.0%; C - no limit	<1.0%	Military - IR Spectra SSPC - IR Spectra or X-Ray Diffraction
Apparent Density	Varies see Table 17	2.5 minimum	2.5 minimum	ISO 11127-3 Others - ASTM C188
Hardness	Varies see Table 17	6	6	ISO 11127-4 Others - Moh's Scale
Moisture Content	<0.2%	<0.5%	<0.5%	ISO 11127-5 Others - ASTM C 566
Conductivity of aqueous extract mS/m	<25	<1000	<290	ISO 11127-6 Others ASTM D 4940
Water-soluble chlorides% (m/m)	<0.0025	Not Set	<0.03%	ISO 11127-7 Military - ASTM D 1411
Weight Change on Ignition	Not Set	> -1.0% - <5.0%	> -1.0% - <5.0%	Military - Heat to 1000°C SSPC - Heat to 750°C
Oil Content	Not Set	Visibly free	<0.03%	SSPC - Visual Military - Freon Extraction
Size Gradation	Varies - see Table 20	Classed According to Profile Achieved[a]	Graded by Batch	ISO 11127-2 Others - ASTM C 117
Friability	Not Set	Not Set	California Limits[b]	California Test Method 371-A
General Composition	Varies - see Table 12	Not Set	Not Set	
Soluble Metals	Not Set	Not Set	Table I[c]	Military - California Administrative Code Title 22
Trace Metals	Not Set	Not Set	Table II[c]	Military - as above
Toxic Materials	Not Set	Not Set	Table III[c]	EPA TCLP Method[d]
Radioactivity	Not Set	Not Set	<20 picoCuries/g	In MIL-A-22262B(SH)

a. Grade 1, 13 to 38 µm (0.5 to 1.5 mils), Grade 2, 25 to 64 µm (1.0 to 2.5 mils), Grade 3, 51 to 89 µm (2.0 to 3.5 mils),Grade 4, 75 to 127 µm (3.0 to 5.0 mils), Grade 5, 102 to 152 µm (4.0 to 6.0 mils)

b. Meet California Administrative Code, title 17, subchapter 6, section 92530 and be present on list of California Air Resources Board (CARB) accepted abrasives

c. From MIL-A-22262B(SH)

d. Federal Register (FR), Volume 55, paragraph 11798, March 19, 1990 (55 FR 11798), Toxicity Characteristic Leaching Procedure (TCLP).

Table 20: ISO Size Designations for Mineral Abrasive

Particle size range[a] (mm)		0.2 to 0.5	0.2 to 1	0.2 to 1.4	0.2 to 2	0.2 to 2.8	0.5 to 1	0.5 to 1.4	1 to 2	1.4 to 2.8
Oversize										
Sieve size	mm	0.5	1	1.4	2	2.8	1	1.4	2	2.8
Residue% (m/m)	max	10	10	10	10	10	10	10	10	10
Nominal size										
Sieve size	mm	0.2	0.2	0.2	0.2	0.2	0.5	0.5	1	1.4
Residue% (m/m)	max	85	85	85	85	85	80	80	80	80
Undersize										
Sieve size	mm	0.2	0.2	0.2	0.2	0.2	0.5	0.5	1	1.4
Through-flow% (m/m)	max	5	5	5	5	5	10	10	10	10

a. Taken from the ISO 11127-2 standard.

Table 21: Typical Data from SSPC and Other Laboratory Studies

Property[a]	Copper Refinery Slag	Coal Furnace Slag	Nickel Refinery Slag	Iron Furnace Slag	Fused Aluminum Oxide	Olivine Sand	Test Method	Staurolite	Garnet	Silica Sand
Specific gravity	3.3	2.8	3.2		3.8			4.5	4.0	2.7
Mohs hardness[b]	>6	≥6	≥6		≥6			≥6	≥6	4 to 6
Conductivity of aqueous extract mS/m	5.6 to 130	2.4 to 16	26				(Note1)	38 to 46	9 to 50	4 to 34
pH	8.2 to 10.3	4.8 to 7.7	7				(Note1)	7.6 to 8	7 to 9.8	5.3 to 9.3
Water-soluble chlorides% (m/m)							(Note1)			

a. Results from a round-robin study of abrasive material conformance with ASTM D 4940 on behalf of ASTM D01 with participation by SSPC and other laboratories.
b. Data supplied by abrasive manufacturers submitting samples to round robin.

Table 22: Non-Metallic Blast Cleaning Abrasives

Abrasive	ISO Definition	Apparent density	
		kg/m^3	kg/dm^3
Copper Refinery Slag	A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from copper smelting. It is basically iron silicate slag.	3300 to 3900	3.3 to 3.9
Coal Furnace Slag	A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing, from slag originating when coal is burned in coal-fired power stations. It is basically aluminum silicate slag.	2400 to 2600	2.4 to 2.6
Nickel Refinery Slag	A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from nickel smelting. It is basically iron silicate slag.	3300 to 3900	3.3 to 3.9
Iron Furnace Slag	A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from iron smelting. It is basically calcium silicate slag.	3000 to 3300	3.0 to 3.3
Fused Aluminum Oxide	A synthetic mineral blast-cleaning abrasive, which is classified as two types, A and WA. Type A is minimum 94% aluminum oxide and maximum 4% titanium dioxide and is brown in color. Type WA contains at least 99% aluminum oxide and is whitish in color.	3900 to 4000	3.9 to 4.0
Olivine Sand	A mineral manufactured from the naturally occurring mineral olivine which is crushed by a mechanical process, dried and sieved and prepared for use as a blast-cleaning abrasive. Olivine is a magnesium silicate.	3000 to 3300	3.0 to 3.3
Staurolite	A naturally occurring mineral sand which is mined, concentrated, scrubbed, dried, and further purified using high-intensity electrostatic and magnetic processes, and prepared for use as a blast cleaning abrasive. Staurolite is an iron/aluminum silicate.	2100 to 2300	2.1 to 2.3
Garnet	A material manufactured from the naturally occurring mineral, garnet, which is dried and sieved, with or without mechanical crushing, and prepared for use as a blast cleaning abrasive. There are two different garnet minerals used for blast cleaning.	3100 to 4100	3.1 to 4.1

Table 23: Metallic Shot and Grit Size Designations Compared

	ISO	SAE J444[a,b]	SFSA 20-66[c] and 21-68[d]	BS 2451[e]	DIN 8201 Teil 2
Shot[f]	S400	S1320		S1320	--
	S300	S1110		S1110	--
	S280	S930		S950	--
	S240	S780	780	S800	2,0 to 2,8
	S200	S660	660	S660	1,6 to 2,24
	S170	S550	550	S550	1,25 to 2,0
	S140	S460	460	S470	--
	S120	S390	390	S390	1,0 to 1,6
	S100	S330	330	S340	0,8 to 1,25
	S080	S280	280	--	0,8 to 1,25
	S070	S230	230	S240	0,6 to 1,0
	S060	S170	170	S170	0,4 to 0,8
	S040	S110		S120	0,3 to 0,6
	S030	S70		S070	0,2 to 0,4
					DIN 8201 Teil 3
Grit[g]	--	--		G95	--
	G240	G10	G10	G80	2,0 to 2,8
	G200	G12	G12	G66	1,6 to 2,24
	G170	G14	G14	G55	1,25 to 2,0
	G140	G16	G16	G47	1,0 to 1,6
	G120	G18	G18	G39	1,0 to 1,6
	G100	G25	G25	G34	0,8 to 1,25
	G070	G40	G40	G24/G17	0,6 to 1,0/0,4 to 0,8
	G050	G50	G50	G12	"0,3 to 0,6"
	G030	G80		G07	"0,2 to 0,4"
	G020	G120		G05	"0,16 to 0,3"
	G010	G200		G02	"0,1 to 0,2"
	G005	G325		G02	--

a. Military requirements for steel shot and steel grit, contained in MIL-S-851D, follow these levels
b. Size requirements for newly manufactured or re-manufactured abrasive in SSPC-AB 3 follow SAE J444.
c. SFSA 20-66 Standard Specification for Cast Steel Abrasives.
d. SFSA 21-68 Standard Specification for Malleable Steel Abrasives.
e. British Standard 2451 for Steel Abrasives.
f. Most steel shot specifications use the prefix letter "S" with a grade of steel shot.
g. Most steel grit specifications use the prefix letter "G" with a grade of steel grit.

D.1 Recent SSPC Specifications for Metallic Abrasives

SSPC-AB 2

The SSPC-AB 2 "Specification for Cleanliness of Recycled Ferrous Metallic Abrasives," was issued in May, 1996. The specification defines cleanliness requirements for recycling metallic abrasive material. Specific allowances of interest in recycled metallic abrasives include:

- Less than 1% by weight of non-magnetic material in the recycled metallic abrasive;
- Less than 0.1% by weight of lead (when tested in accordance with ASTM D 3335, digestion and atomic absorption).
- Water soluble contaminants are limited to less than 1,000 micromhos/cm.

It should be noted that metallic abrasives procured for use in naval shipbuilding are expected to meet the requirements of the governing military specification (MIL-S-851D), both before and after recycling. An abrasive with contaminant levels permitted at the levels allowed in SSPC-AB 2 will not meet these requirements.

SSPC-AB 3

The SSPC-AB 3 "Specification for Newly Manufactured or Re-Manufactured Abrasives," was issued in May, 1997. This specification corresponds with the SAE requirements from SAE J444 for sizing of metallic abrasive grit. The requirements for carbon content of the steel grit in SSPC-AB 3 differ from those shown in ISO 11124-3 (for high-carbon steel grit and shot). The specified level of allowed carbon in SSPC-AB 3 is up to 1.5%. The specified range of carbon in ISO 11124-3 is between 0.8% to 1.2%. The higher range of allowed carbon in the SSPC specification permits re-manufactured steel grits that do not meet the requirements of the ISO standard. The expectation of the SSPC-AB 3 standard is that the primary control on exact composition will be the hardness defined by the buyer.

National Shipbuilding Research Program

Project Number 3-95-7

User's Guide to Selection of Blasting Abrasives

Deliverable Item 6

The User's Guide to Selection of Blasting Abrasives

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Part I The Abrasive Users Guide

1. Introduction

A. General

The User’s Guide to Selection of Abrasives is a product of the National Shipbuilding Research Program (NSRP project 3-95-7). The guide provides information on the selection of abrasives based on:

- Task Descriptions;
- Qualification (against a specification);
- Cleaning Capability;
- Physical Properties;
- Costs;
- Surface Quality Requirements;
- Productivity in Use
- Safety, and;
- Environmental Impact.

Surface preparation by abrasive blasting involves a wide variety of cleaning requirements for new construction and ship repair. These range from cleaning of thin primers and light rust to removal of thick coatings, heavy rust and other agressively adherent contaminants. The market offers a multitude of abrasives from which a user can choose. Some abrasives are used only once, others are recycled. Some abrasives are general purpose while others have more specialized applications.

To make a suitable choice of abrasive, a user must analyze preparation task requirements and match those to the production characteristics of available abrasives. Items to be taken into account include personal hygiene, environmental impact, waste disposal, material costs, productivity, cleaning effectiveness, coating performance, climatic effects, cleanliness standards, for both new and recyclable materials, and equipment costs. This guide provides a user with a simplified means to base a decision on the available data, industry standards and abrasive test methods.

B. Objective and Use of Guide

Objective

This guide was developed to help you select abrasives and provide information on their proper use in a shipyard setting. Specifically, this publication will provide guidelines on:

- Selecting and using abrasives for improved productivity, efficiency, performance and cost effectiveness, and;
- Minimizing impact of abrasives on worker health and safety, the environment, public health and assuring compliance with national and local regulations.

To help achieve these aims, a reader is taken through a decision process based on a task description. The process uses a series of flow-charts that link to tables and charts depicting abrasives, their performance characteristics and consequences of their use in typical applications.

Intended Audience

The intended audience for this guide are users, specifiers, engineers and purchasing agents in U.S. shipyards.

Major Uses of the Guide

The types of tasks you can perform with this guide include:

- Selection of abrasives for typical shipyard tasks.
- Estimation of productivity and consumption rates for one or more abrasives.
- Estimation of costs for individual tasks based on abrasive and operating condition choices.
- Comparison of productivity and consumption data with shipyard experience.

The flow-chart metaphor for abrasive selection is used for each of the above typical tasks. In the following sections are shown examples of this process in action.

C. Inputs and Outputs for Estimating Productivity & Consumption Rates

C.1 User Inputs

The following items of information are provided by the user of the guide.

Define Original Surface Conditions

The first stage in the process is to describe your task. This is done by first defining factors which are outside of your control, but which influence abrasive productivity. These factors include:

- The Type of Original Surface Being Cleaned; 1 of 4 choices allowed.
- The Hardness of the Coating on That Surface; 1 of 3 choices allowed.
- The Degree of Cleaning Specified; 1 of 4 choices allowed, and
- The Profile Demanded by the Specified Coating System; 1 of 3 choices allowed.

The choices made above generate a 4-digit code which can range from 1111 to 4343. For example, choosing light rust and millscale as the surface condition, hard coating, SSPC-SP 5 and the low profile range yields the code 1111.

Describe Operating Conditions

Operating conditions are in your control but are limited to selections of nozzle size and air pressure at the nozzle. Our guide tables only use the most common operating conditions of nozzle sizes 6 through 8 and pressures from 90 to 125 pounds per square inch (psi) at the nozzle.

C.2 Outputs to User from Guide

The basic outputs are production rates and consumption rates based on user selection of operating parameters and surface conditions. This information can be derived for several mineral abrasives, and for metallic abrasives. Costs for a specific job can be computed based on additional information furnished by the user.

D. Versions of The Guide

The guide is a text version of a stand-alone electronic database application. All the data on productivity and abrasive consumption contained in this guide come from the database application. The guide can be used independently from the database application, or it can be used in conjunction with the database application.

E. Contents of the Guide

The remainder of this guide is divided into the sections and appendices described below.

2. Using Guide for Estimating Abrasive Production and Consumption Rates

This section gives a step by step description of the user guide selection process, with examples.

3. Using Guide to Estimate Costs for a Specific Task

Cost estimating methods based on a cost model are shown in this section. The full cost model, and all equations for the same are shown in Appendix 5 -- "Equations for Use in Cost Modeling."

4. Comparing Productivity and Consumption Data with Shipyard Data

The guide provides a means for a user to collect data on abrasive consumption and productivity for comparison with the data in the guide tables.

5. Overview of Abrasives Used at Shipyards

This section describes why abrasives are used in a shipyard setting, the types of tasks requiring abrasives and how abrasives are bought and used.

6. Other Factors Affecting Abrasive Selection and Use

This section provides information about the influence of factors such as abrasive type, regulations and specifications on abrasive choice and procurement.

Appendix 1 Major Factors Affecting Abrasive Selection and Costs

This appendix section describes the major factors affecting abrasive selection.

Appendix 2 Relationships and Trade-offs in Abrasive Selections

This appendix section outlines some of the relationships between abrasive selections and productivity or abrasive consumption rate.

Appendix 3 Factors Affecting Abrasive Blast Cleaning at Shipyards

This appendix section provides background information on factors affecting abrasive blast cleaning work in a shipyard setting.

Appendix 4 Factors Limiting the Selection of Abrasives

This appendix section describes other factors which can limit the selection of abrasive such as specification requirements or health, safety and environmental regulations.

Appendix 5 Equations for Use in Cost Modeling

This appendix section provides full details of the equations used in cost modeling. The section also includes a fully worked example illustrating the use of the cost model.

Appendix 6 Regulatory Factors Affecting Abrasive Selection & Use

This appendix section provides background information about the regulatory factors affecting abrasive selection and use. The section contains information on the environmental impacts of abrasive use, and health and safety considerations during use of abrasives.

Tables of Abrasive Productivity & Consumption

Separately bound from the body of this guide are the data tables containing the productivity and consumption data for over thirteen different mineral, organic, and metallic abrasives. The data tables are used in conjunction with the text guide.

F. Supplementary Materials

As discussed earlier in paragraph D. above all data used in the productivity and consumption tables comes from a database application. This database application is available separately. The database application includes the modules described below. Users of the database application require access to a personal computer running Windows 95. The database application is accompanied by a simple written user’s guide. Help windows are provided throughout each of the modules.

1. Abrasive Characteristics Module

A tutorial module which guides a user through the different ways in which abrasives are described and classified. Guidance is given on the influence that certain key characteristics of an abrasive have on abrasive use and finished surface quality and profile.

2. Abrasive Measurements Module

This module gives the user a graphical representation of typical sieve size distributions for many mineral or metallic abrasives. Size distributions are keyed to the profile requirements of a specification.

3. Abrasive Production and Consumption Rate Module

This is the module from which comes all the tables used with the guide.

4. Abrasive Cost Modeling Module

This is an interactive version of the cost modeling approach outlined in Section 3. and described in detail in Appendix Appendix 5. An advantage of the database version for cost modeling is that record keeping and calculation are automatic. All the user need do is describe their task and operation.

Figure: 1Flow Chart for Abrasive Selection

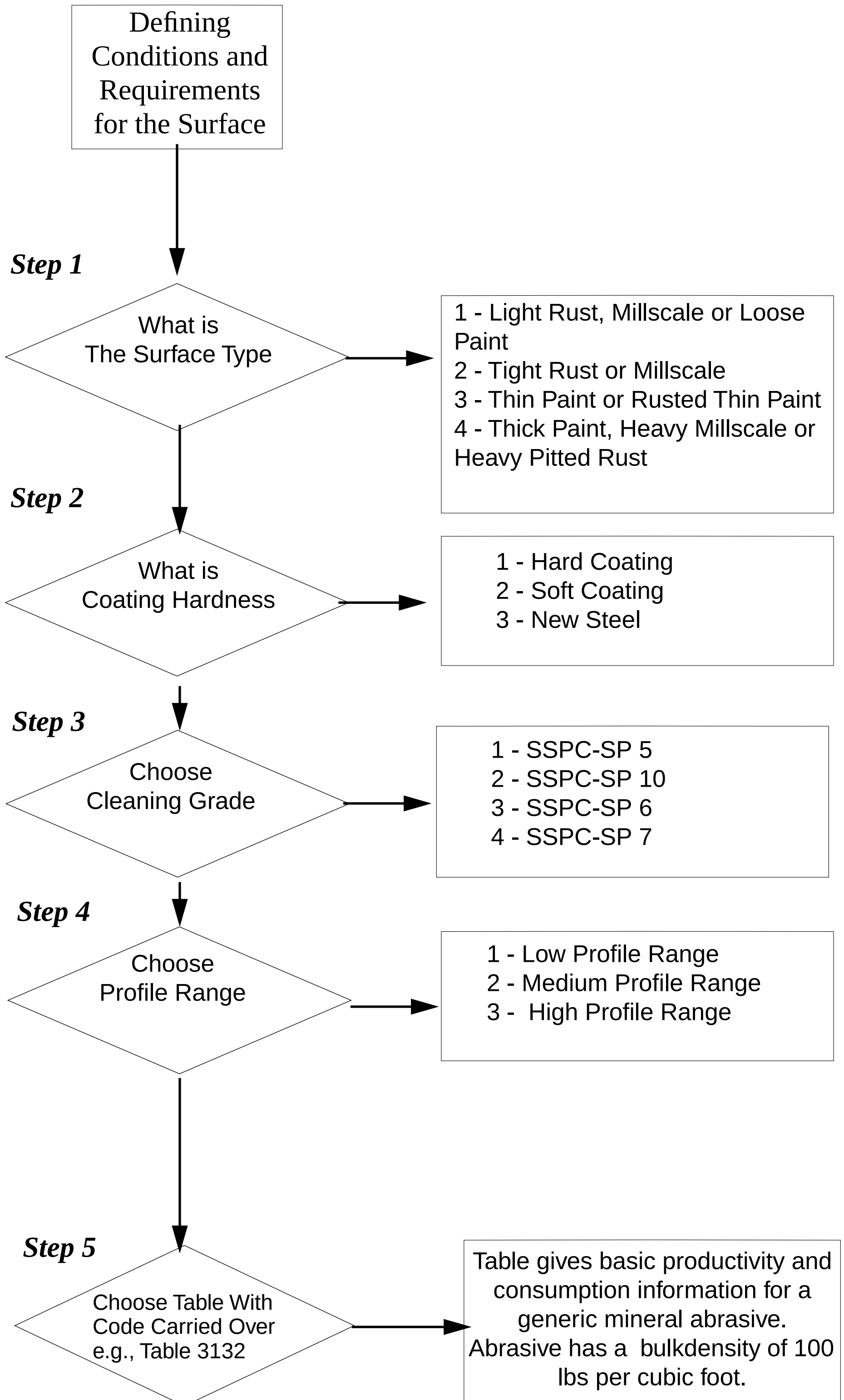
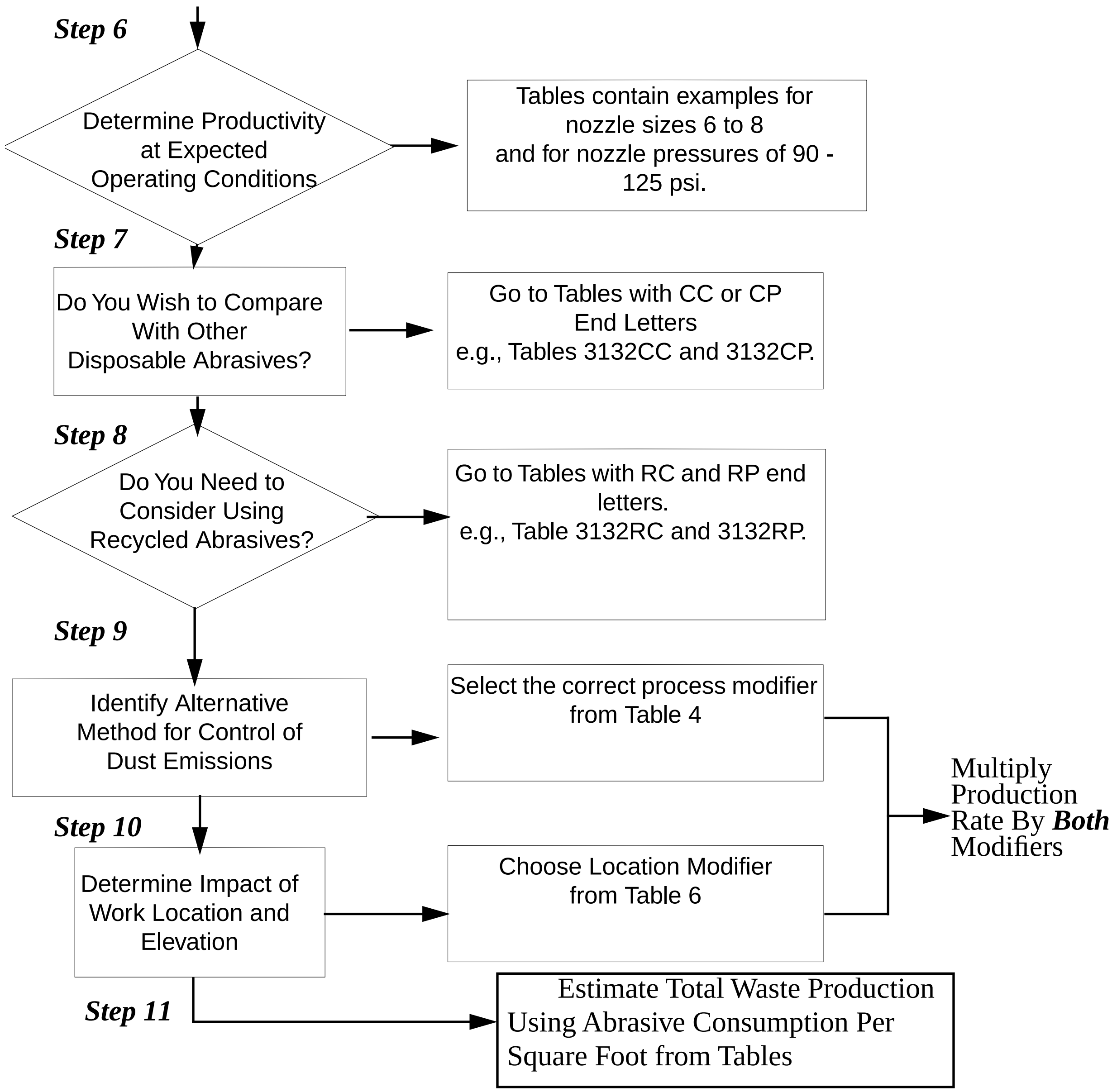


Figure 1:Flow Chart for Abrasive Selection (Continued)



2. Using Guide for Estimating Abrasive Production and Consumption Rates

A. Overview of Procedure

This section of the guide describes how to estimate production rates (sq ft/hr) and consumption rates (lbs/sq ft) for various abrasives. This is done by defining different surface conditions, operating parameters and other factors in an 11 step process:

Step 1 Describe The Surface You Will Clean.
Step 2 Determine Coating Hardness.
Step 3 Choose Cleaning Grade.
Step 4 Choose Profile Range.
Step 5 Choose Table with Code Carried Over.
Step 6 Determine Productivity at Expected Operating Conditions.
Step 7 Do You Wish to Compare With Other Disposable Abrasives?
Step 8 Do You Need to Consider Using Recycled Abrasives?
Step 9 If needed, Identify Alternative Method for Control of Dust Emissions
Step 10 Describe Impact of Work Location and Elevation.
Step 11 Estimate Total Waste Production.

To select an abrasive, you first describe the task that abrasive will do. The better the task description, the better the choice(s) of abrasive. The five steps in describing a task are shown in Figure 1 on page 5. The first four steps define the surface you will clean, the hardness of the coating, the desired quality of the cleaned surface, and the required profile. These steps provide a “task descriptor,” a number based on the choices made at each of the four steps. The fifth step takes you to a set of tables for the generated task descriptor. (Say you chose option number one for each of these four choices then you would look for Data Table 1111).

All the tables used with this guide are reproduced from a database application. You can use the database in lieu of this guide if you have access to a personal computer (see Section 1.F for more information about the database application).

The remaining steps are those in which actual selection of an abrasive takes place. The remaining steps also give the user the opportunity to refine the task description. This refined task description has two results. First, the choices of abrasive are narrowed down. Second, the productivity and cost estimates for the cleaning task are improved.

All eleven steps in the use of this guide are described in detail in the pages below.

B. Description of the Eleven Steps in the Decision Process

Use the eleven steps described below to help in abrasive selection.

Step 1: Describe The Surface You Will Clean

Choose the description which most closely matches the surface you want to clean. There are four basic descriptions given:

1. Light Rust, Millscale or Loose Paint. This is a deteriorated surface which requires little effort to clean.
1. Tight Rust or Millscale. This is new sheet steel plate.
2. Thin Paint or Rusted Thin Paint. This is previously coated steel plate where the coating thickness is no more than 5 mils.
3. Thick Paint, Heavy Millscale or Heavily Pitted Rust. This can be steel plate where the coating

thickness is greater than 10 mils.

This is done first because you are not “in control” of the type of surface requiring cleaning. Past records on productivity show that each of these four surface types provide different production rates for abrasives used under similar operating conditions.

Remember to note which choice you made, for instance choice 3.

Step 2: Determine Coating Hardness

It is also recognized that the type of surface coating plays a role in how productive you can be. For coated surfaces there are three descriptions - choose the one which matches most closely the type of coating being removed:

1. Hard coating - typically a chemically cured coating such as an epoxy or urethane, or zinc-filled coating.
1. Soft coating - typically a more readily etched or deformed surface such as an alkyd, latex, or chlorinated rubber coating.
2. No Coating (new millscale bearing steel).

The last of these choices is not a coating as such, but is needed for completeness. Remember to note which choice you made, for instance choice 1.

Step 3: Choose Cleaning Grade

Typically you will be told which level of cleaning is required in a specification. The guide also allows you to see what effect a different level of cleaning has on production rates or consumption. The grade of preparation chosen has a significant impact on the production and consumption rates of a given abrasive. Choose one of the four preparation grades below:

1. SSPC-SP 5 “White Metal Blast Cleaning.”
1. SSPC-SP 10 “Near White Metal Blast Cleaning.”
2. SSPC-SP 6 “Commercial Blast Cleaning.”
3. SSPC-SP 7 “Brush-Off Blast Cleaning.”

Please note your choice, for instance choice 3.

Step 4: Choose Profile Range

Profile requirements are often given in the coating material specification. There are three size range choices for profile requirements that span typical values found in specifications:

1. Low Profile Range - Between 1.5 and 2.5 mils.
1. Medium Profile Range - Between 2.5 and 4.0 mils
2. High Profile Range - Over 4.0 mils.

To achieve a low profile you will be selecting an abrasive with a lower overall size. This choice has an impact on the rate of cleaning because smaller abrasive particles will improve productivity.

Make a note of the choice you made, for instance 2 - Medium Profile.

Step 5: Choose Table with Code Carried Over

The four choices you made in Step 1 through Step 4 provide a code which identifies the table you should examine. In the example we chose options 3, 1, 3, 2. Thus the table we need to look at is Data Table 3132. This table is based on a typical mineral abrasive, having a bulk density of 100 pounds per cubic foot. At this point it is useful to see what effect your choice has on abrasive use rates, and how fast your work will be done.

The numbers from this table are shown in Table 1 on page 10. The table is also seen in its proper place among all the other tables later in this guide.

Step 6: Determine Productivity at Expected Operating Conditions

Operating conditions have a big impact on abrasive productivity and consumption. The operating conditions are defined in terms of nozzle sizes and pressure at the nozzle.

There are three nozzle sizes given. They are size, six, seven and eight (corresponding to *3/8"*, *7/16"* and *1/2"* diameter, respectively). There are several operating pressures given, ranging from 90 psi to 125 psi. (The electronic version of this guide provides more operating condition options. To save space, this printed guide only uses the most common combinations of operating conditions reported by shipyards and industry sources).

Because all combinations of nozzle pressure and nozzle size are given in the table you don't need to make a note of your choices here. Instead, the tables give you a glimpse of how productivity and consumption rates change with different combinations of the operating conditions.

Step 7: Do You Wish to Compare With Other Disposable Abrasives?

The guide also includes tables which give comparisons of one abrasive with another. These tables provide you with typical consumption rates in pounds per hour of blasting (and separately pounds of abrasive needed per square foot of cleaning) for fifteen different abrasive materials. These tables are quite large. They also have code numbers based on your earlier choices but have the letters added to the table identifier. The letters "CC" mean this is a table for abrasive consumption, the letter "CP" mean this a table for abrasive productivity in pounds of abrasive per square foot of cleaning. From our choices we need to look at Tables 3132CC and 3132CP. To save space, we only show a limited number of choices from these tables. Typical table content is shown in Table 2 on page 11. Typical abrasive choices for different shipyard surface preparation tasks are shown later in Table 7 on page 26.

Step 8: Do You Need to Consider Using Recycled Abrasives?

Some coatings when removed will generate a waste product which will test as a hazardous waste under the Toxic Characteristics Leaching Procedure (TCLP). Sometimes a facility may simply wish to reduce overall waste generation, regardless of the classification of the waste. Under these conditions you may wish to consider using recycled abrasive materials. The cost of waste disposal is influenced by this factor. It also may restrict your choices of abrasive to those you can recycle. Typical recyclable abrasives include metallic abrasives (steel or iron), garnet and aluminum oxide abrasives. One set of tables with information similar to Tables 3132CC and 3132CP is given for recyclable abrasives. These tables have the letter codes RCP and RP, so our example table is Tables 3132RCP. Examples from this table are shown below in Table 3 on page 12.

Table 1: Example of Production and Consumption Rates for A Typical Abrasive - “Data Table 3132”(See Note [a])

Nozzle Size - Standard Nozzle Size Numbers	Pressure At Nozzle - PSI	Consumption Rate - Pounds Per Hour of Blasting (See Note [b])	Production Rates - sq. ft. per hour. (Rounded to nearest ten square feet).		
			-25% (See Note [c])	Median	+25%
6	90	1052	200	270	340
7	90	1448	310	410	510
8	90	1856	410	540	680
6	100	1152	230	300	380
7	100	1584	340	450	560
8	100	2024	450	600	750
6	110	1226	250	330	410
7	110	1699	370	490	610
8	110	2164	500	660	830
6	125	1393	280	370	460
7	125	1931	420	560	700
8	125	2459	560	740	930

a. Data Table 3132 indicates that these production and consumption rates reflect a task of removing thin soft paint to get a “Commercial Blast Cleaned” SSPC-SP 6 surface with a medium profile grade.
b. The consumption and productivity figures given are for a “typical” mineral abrasive. This will have a bulk density of around 100 pounds per cubic foot.
c. Productivity is given as a median and ± 25% range because production rates can vary with operator use, even when operating conditions are closely defined.

Table 2: Data Table 3132CC (Upper) and 3132CP (Lower), Comparing Consumption Rates for one Abrasive With Another (See Note [a])

Operating Conditions		Consumption Rate - Pounds Per Hour of Blasting (See Note [b])		
Nozzle	**Pressure (PSI)**	**Typical Mineral Abrasive**	**Refinery Slag**	**Coal Furnace Slag**
6	90	1052	1578	1148
7	90	1448	2172	1580
8	90	1856	2784	2025
6	100	1152	1728	1257
7	100	1584	2376	1728
8	100	2024	3036	2208
6	110	1226	1839	1337
7	110	1699	2549	1853
8	110	2164	3246	2361
6	125	1393	2090	1520
7	125	1931	2897	2107
8	125	2459	3689	2683
Operating Conditions		**Consumption Rate - Pounds Per Square Foot of Cleaning**		
Nozzle	**Pressure (PSI)**	**Typical Mineral Abrasive**	**Refinery Slag**	**Coal Furnace Slag**
6	90	3.9	5.8	4.2
7	90	3.6	5.3	3.9
8	90	3.4	5.1	3.7
6	100	3.8	5.8	4.2
7	100	3.5	5.3	3.8
8	100	3.4	5.1	3.7
6	110	3.7	5.6	4.1
7	110	3.4	5.2	3.8
8	110	3.3	4.9	3.6
6	125	3.8	5.6	4.1
7	125	3.5	5.2	3.8
8	125	3.3	5	3.6

a. These consumption rates are based on similar volumes of feed rates to those used for the "typical" abrasive. (A typical mineral abrasive is one with a bulk density of 100 Lbs per Cubic Foot, an example is a mineral sand).

b. The consumption and productivity figures given are for a "typical" mineral abrasive. This will have a bulk density of around 100 pounds per cubic foot.

Table 3: Recyclable Abrasive Consumption Data Table 3132RCP (See Note [a])

Operating Conditions		Production Rate	Consumption Rates - Pounds Per Hour			Abrasive Used Per Square Foot of Cleaning		
Nozzle Size	Pressure at Nozzle - PSI		Steel	Garnet	Aluminum Oxide	Steel	Garnet	Aluminum Oxide
Without Recycling								
6	90	270	3347	1482	1865	12.4	5.5	6.9
8	90	410	5905	2615	3290	10.9	4.8	6.1
6	100	540	3665	1623	2042	12.2	5.4	6.8
8	100	300	6440	2852	3588	10.7	4.8	6
6	110	450	3901	1728	2173	11.9	5.3	6.6
8	110	600	6885	3049	3836	10.5	4.6	5.8
6	125	330	4432	1963	2469	11.9	5.3	6.7
8	125	490	7824	3465	4359	10.5	4.7	5.9
With Recycling								
6	90	33	296	224	0.1	1.1	0.8	6.9
8	90	59	523	395	0.1	1	0.7	6.1
6	100	37	325	245	0.1	1.1	0.8	6.8
8	100	64	570	431	0.1	1	0.7	6
6	110	39	346	261	0.1	1.1	0.8	6.6
8	110	69	610	460	0.1	0.9	0.7	5.8
6	125	44	393	296	0.1	1.1	0.8	6.7
8	125	78	693	523	0.1	0.9	0.7	5.9

a. Top half of table shows use of recycled abrasive in raw terms - without use of recycling. Bottom half of table shows the benefits of recycling on consumption rates.

Step 9: If needed, Identify Alternative Method for Control of Dust Emissions

Shipyards are under increasing pressure to minimize emissions from abrasive blasting. This often involves the use of alternative means of surface preparation. It is rare for an alternative method of cleaning to have identical productivity with open air abrasive blasting. Often the alternative method reduces productivity.

To limit the number of tables shown, the impact of the particular environmental constraint is given in the form of a modification factor caused by your response to the challenge of meeting

environmental regulations. This choice of an alternate preparation method is often termed an “engineering control.”

Recycling is not the only way to work within environmental constraints. Sometimes an alternative method of preparation is used to limit dust emissions. Based on industry and shipyard reports, the following methods are used to control dust emissions from abrasive blasting.

Table 4: Production Rate Modifiers when Meeting Environmental Regulatory Constraints

Engineering Control	Production Rate Modifier	Abrasive Selection Impact	Other Comments
Open Air Abrasive Blasting (standard)	1.0	Typically Mineral Abrasives Chosen	Default Method
Wet Abrasive Blasting	0.75	Cannot Use Metallic Abrasives	Clean up needed, Flash Rusting Likely
Low Volume Water Slurry Blasting	0.85	Cannot Use Metallic Abrasives	Lower Clean-Up, Flash Rusting Limited
Vacuum Blasting	0.1 - 0.2	Recylable Abrasives Preferred	Equipment Heavy, Production Rate Falls Off with Time
High Pressure Water Jetting (>25,000 psig)	0.25	Abrasive Injection Rare	No Profile Production
Vacuum Assisted SSPC-SP 11 Cleaning	0.15	Media described in specification.	Limited Range of Profile, Productivity Falls Off with Time.
Recycling with Containment	0.6	Use The Tables for Recycled Abrasives (e.g. 3132 RCP	Modifier Reflects Moving and Placing Containment

To see the impact of these modifiers you take the productivity estimate from a chosen table and multiply it by the factor found in the second column of Table 4, above.

Step 10: Describe Impact of Work Location and Elevation

Where the work is done can have two types of impact. First, there is the impact on operating conditions caused by location. Second, there is a direct impact on production rates based on the location within or on the vessel being cleaned.

A typical example of a work location modifying operating conditions is when the surface is elevated. Since the production rates given in the table are based on pressure at the nozzle, factors that lower this pressure also lower production rates. Production rates decrease with long runs of blast hoses needed to reach elevated areas, because of the lower pressures at the nozzle. Increasing the pressure at the compressor or increasing the hose diameter and volume of air can compensate for the loss of pressure at the nozzle.

Typical pressure losses are shown in Table 5 on page 14 for various nozzle pressures and flow rates of compressed air.

Table 5: Example of Pressure Loss for a 50 ft long 1-Inch diameter Hose Section (See Note [a])

Air Volume (cfm)	Line Pressure (psig)							
	60	80	90	100	120	150	200	300
120	2.7	2.1						
150	4.1	3.2	2.7	2.3				
180	5.8	4.6	3.8	3.2	2.6	2.0	1.3	
210	7.7	6.1	4.0	4.3	3.5	2.7	1.8	
240		7.9	6.5	5.5	4.5	3.4	2.3	
270		9.8	8.1	6.9	5.6	4.3	2.9	

a. Abstracted from Seavey, M., JPCL, July, 1985

Typical location modifiers are shown below in Table 6 on page 15.

You should multiply the environmental modifier from Step 9: *and* the location modifiers from Step 10: together to estimate the full impact on productivity and your process. Consider the use of wet abrasive blasting on hull cleaning above 75 feet elevation for which basic productivity is estimated as 266 square feet per hour. The modified production rate is 266 x 0.75 (The modifier for wet abrasive blasting) x 0.50 (the modifier for working in elevated areas) square feet per hour, or 100 square feet per hour.

Step 11: Estimate Total Waste Production

An important cost element in surface preparation is the cost of waste disposal. Take the consumption rate found for your operating conditions (e.g, from Table 3132CC), and multiply it by the total number of square feet to be cleaned. Dividing the result by 2000 gives the number of estimated total waste production.

Table 6: Production Rate Modifiers Based on Work Location

Location	Production Modifier
Hull Section - Easily Reached	1
Complex Steel Shape - Less than 25ft Elevation	0.75
Hull Section - 26-75 Feet High	0.75
Complex Steel 26-75 Feet High	0.75
Hull Section 76-150 Feet High	0.50
Complex Steel 76-150 Feet High	0.50
Interior Tank Space - Little Structural Steel	0.50
Interior Tank Space - Complex Structural Shapes	0.25

3. Using Guide to Estimate Costs for a Specific Task

The previous steps in the model enabled users to estimate production rates and abrasive consumption rates. Cost estimation begins with the estimate of production rate (P in ft^2/hr) and consumption rate (C in pounds per hour).

A. Information Needed for Cost Modeling

The following added information is needed to provide a reliable number for the cost of blast cleaning operations:

- Area to be blast cleaned in square feet, (A).
- Average number of hours per shift spent setting up equipment and staging for a work area (H1).
- Length of each shift (H2).
- Number of people per shift performing blast cleaning, (N1).
- Number of people per shift tending blast cleaning equipment, (N2).
- Number of shifts in each work-day (N3).
- Cost of the abrasive (typically in dollars per ton), (M1).
- Cost of labor (labor rates, including all taxes and overheads - $/hr,) (M2)[1]
- Cost ($/hr) of equipment operation, (M3)
- Cost ($/hr) of consumable equipment, (nozzles, hoses etc.), (M4)
- Waste disposal cost (S/Ton) (if a waste is hazardous also include the cost (S/Ton) of waste treatment prior to disposal), (M5)

B. Quantities Computed By The Cost Model

The model computes the following quantities:

- (H3) -- Maximum hours available for surface preparation.
- (N4) -- Number of shifts used to complete a task.
- (N5) -- Total number of expended labor hours.
- (N6) --Total number of hours of equipment operation.
- (M6) -- Total labor cost for surface preparation.
- (M7) -- Total cost of equipment operation.
- (N8) -- Number of tons of abrasive used.
- (M8) -- Total cost of abrasive used.
- (M9) -- Total costs for consumable equipment.
- (M10) -- Total costs for waste disposal.

The details of the computations are given in Appendix 5.

C. Example of Use of the Cost Model

The following example illustrates the cost estimating process for a job in which there is only one eight hour shift per day. Set-up or close-down equipment takes 1.5 hours of the shift.

The values used for the various factors are:

- (A) -- Size of area to be blasted in square feet, 50,000 ft^2
- (H1) -- Average number of hours spent setting up equipment and staging for a work area per shift, 1.5 hours.

---

1. Note that this assumes a constant labor rate for blasters and support personnel.

- (H2) -- Length of each shift, eight hours per shift.
- (N1) -- Number of people performing blasting in each shift, 2 blasters per shift.
- (N2) -- Number of people tending blasting equipment, one tender per shift.
- (N3) -- Number of shifts in each work-day, one shift per day.
- (M1) -- Abrasive cost (typically in dollars per ton), $100 per ton.
- (M2) -- Labor cost (fully burdened labor rates - $/hr), $40 per hour.
- (M3) -- Equipment operation cost ($/hr), $45 per hour.
- (M4) -- Consumable equipment cost, nozzles, hoses etc. - $/hr), $3.00 per hour.
- (M5) -- Waste disposal cost - $/ton), (M5), $30 per ton.
- In this example, the productivity estimate (P) is 250 ft^2 per hour and the estimated consumption rate (C) is 2,000 lbs/hr.

Using the equations shown in Appendix 5, the following costs are computed:

- M6 (Total labor cost of surface preparation) = $15,360;
- M7 (Total cost of equipment operation) = $5,760;
- M8 (Total cost of abrasive used) = $20,000;
- M9 (Total costs for consumable equipment) = $600, and
- M10 (Total costs for waste disposal) = $6,000.

Thus, using equation 12 in Appendix 5, our cost in dollars for this surface preparation task is:

$$M11 = 15,360 + 5,760 + 20,000 + 600 + 6,000 = 47,720 \qquad \textbf{(1)}$$

This gives a cost per square foot of $0.95(4) for this surface preparation task.

4. Comparing Productivity and Consumption Data with Shipyard Data

Shipyards may wish to compare their data on productivity and consumption with that given in the guide’s tables. This can help in benchmarking performance. It is important that data collected by shipyards be comparable with that in the guide.

To help shipyards obtain uniform and repeatable data guidance is given on such factors as:

- Evaluating shipyard blast cleaning operations;
- Determining the effectiveness of existing blast operations;
- Characterization of abrasive used (size distribution, measuring consumption, etc.), and;
- Describing achieved surface quality (cleanliness and profile).

This will improve the validity of comparisons made between tabulated and production data.

The guide contains productivity and abrasive use rate based on information obtained from two sources:

- Data obtained from the technical literature, and;
- Data obtained from shipyard paint departments or abrasive manufacturers.

The data shown in the tables is a “consensus” of the data from these sources.

Individual use rates for abrasive may vary from those shown in the tables. Your production rate may be higher or lower than that seen in the tables. We suggest two ways to use these differences in information.

First, users of the guide can use the given rates for productivity and abrasive use rates to provide a benchmark for measuring how well their process is running.

Second, there are blank versions of the productivity and consumption rate tables provided. These enable users of the guide to record their own productivity and consumption rate information. The resulting tables may aid you in following changes to the productivity of your process.

A. Evaluating Shipyard Blast Cleaning Operations

The user can compare actual productivity and consumption rates with those predicted by the model. Some of the key requirements involved in making such a comparison are described below.

A.1 Define Task and Operating Conditions

- Note the original condition of the steel.
- Note the finished condition of the steel.
- Note whether the coating is hard (like an epoxy), or soft (like a vinyl).
- Identify the abrasive type.
- Note the achieved profile and compare it with the range values for Low, (between 1.5 to 2.5 mils), Medium, (between 2.5 to 4.0 mils), and High Profile, (over 4.0 mils).
- Measure and record pressure at the nozzle.
- Measure and record nozzle size.

A.2 Determine production rates

- Measure and record both the area cleaned (A) and duration (D) of actual blasting activity - “peak productivity.”
- Measure and record the time spent (T) tending the blasting pots, staging the work areas, and other non-productive support activities.
- Compute production rate for blasting (A/D).
- Compute overall production rate (A/{D+T}).

A.3 Determine consumption rates

There are three methods recommended for determining consumption rates. One method for estimating consumption rates is to weigh a blasting pot before and after a known period of blasting. A second method is to collect a sample of abrasive dispensed over a known period of time and then weigh the collected abrasive. This second method is preferred for making measurements of consumption rates when abrasive flow is optimized. The third method is to count the number of bags of abrasive added to the hopper during the surface preparation task.

B. Determining Effectiveness of Existing Blast Operations

B.1 Determine Theoretical Production and Consumption Rates

Using the model determine the theoretical production and consumption rates, (Step 1 on page 7 through Step 7 on page 9). Use the same parameters as identified in section Section A.1, page 18, above.

Begin by using Steps 1 through 4 to create the initial task description. This will yield the task code.

- Step 1: Type of surface - Thin paint or rusted thin paint, code number 3;
- Step 2: Coating hardness - Hard coating (such as an epoxy), code number 1;
- Step 3: Degree of cleaning required - SSPC-SP 6 "Commercial Blast Cleaning," code number 3, and;
- Step 4:Profile range required - between 2.5 and 4.0 mils, (medium profile,) code number 2.

This yields a task code of 3132.

In Step 5 choose the Data Table carrying the 3132 code, (as shown in Table 1 on page 10).

In Step 6 choose the particular operating conditions of pressure at nozzle and nozzle size which were used for the surface preparation task. This will give the theoretical production and consumption rates for a single use abrasive with a bulk density of 100 lbs per ft^3.For instance, from Table 1, a choice of number 7 nozzle size and a pressure at the nozzle of 100 psi gives a production rate of 450 ft^2/hr and a median consumption rate of 1,584 lbs/hr.

In Step 7 decide which specific abrasive to use in this task. To do this consult Data Table 3132 CC, part of which is shown in Table 2 on page 11, for your consumption rate information. Note that more than one choice of abrasive is given. If a coal furnace slag is the chosen abrasive the consumption rates become 1,728 lbs/hr. In this example production rate is assumed to remain constant.

B.2 Compare Theoretical and Actual Rates

Compare the two sets of rates to determine the relative effectiveness of the shipyard operation. If your actual consumption rate is higher than the theoretical figure, or the production rate is lower you may want to consider a change to the surface preparation process.

C. Options for Process Changes

A comparison of theoretical and actual rates may suggest a need to improve your surface preparation process. This section describes some simple steps which can improve production rates and reduce consumption of abrasive.

The process changes are divided into changes which improve consumption rates, and changes which improve production rates.

C.1 Process Changes that Improve Consumption Rates

Examples of process changes that can improve consumption rates include:

- Reducing the abrasive flow rate;
- Checking nozzle for wear, and;
- Maintaining the abrasive working mix.

C.1.1 Reducing Abrasive Flow Rate

Abrasive flow rate is often judged visually by the abrasive blaster. A typical rule of thumb is that the flow rate is choked back till the flow from the nozzle has the appearance of a blue flame. This qualitative check on abrasive flow rate does not always give the lowest flow rate needed to effectively perform the surface preparation task.

Sometimes it is difficult to maintain control of abrasive flow because of wear on the flow valve. Regular maintenance of the flow valve can help maintain tight control on abrasive flow.

Upgrading the flow valve can yield marked improvements.

There are abrasive flow valves available on the market which will meter abrasive flow more carefully. They are called micro-flow valves. These valves replace the older valve designs, which are less easy to control. The trick is to use such a fine control valve to reduce abrasive flow to the point where acceptable production is maintained. An NSRP study (NSRP Project 3-93-6) indicates the use of improved flow control valves can reduce abrasive consumption by 25% or more, without impairing production rates.

In summary, to reduce abrasive flow rate:

- Check that actual flow rate is the lowest needed for productive cleaning;
- Check the abrasive flow valve for wear, replace if required, and;
- Consider using micro-flow valve.

C.1.2 Checking the Nozzle for Wear

The internal diameter of the blast nozzle increases with use. The larger the diameter of the nozzle, the greater the flow rate of abrasive needed to maintain the expected blue flame appearance. An increased nozzle diameter resulting from wear will have some of the effect of changing from a smaller to a larger nozzle. As noted in paragraph C.2.3 on page 21, though production rates may increase, it is not an optimized production rate that results.

C.1.3 Maintaining the Abrasive Working Mix

An indirect cause of increased consumption of abrasive is poor working mix maintenance. The working mix of an abrasive is the ratio of abrasive particles, sorted by size. There should always be a reasonable proportion of smaller size particles, along with larger particles needed to achieve profile requirements.

If there is too high a proportion of large particles in the working mix the blaster might increase flow rate to compensate. Maintaining abrasive working mix reduces the likelihood that in process changes to flow rate will occur. The blaster will observe rapid, easy cleaning of the surface.

C.2 Process Changes that Improve Production Rates

Examples of process changes that can improve production rates include:
- Maintaining the abrasive working mix;
- Checking pressure at the nozzle;
- Checking the nozzle for wear.

C.2.1 Maintaining the Abrasive Working Mix

As noted above, poor maintenance of abrasive working mix can reduce production rates. The working mix of an abrasive should always contain a reasonable proportion of smaller size particles, along with larger particles needed to achieve profile requirements.

The smaller abrasive particles are the key to improved productivity. A known weight of smaller abrasive particles performs more cleaning work than the same weight of larger abrasive particles. If production rates fall off during cleaning you should determine whether your working mix is well balanced.

C.2.2 Checking the Pressure at the Nozzle

Check pressure at the nozzle frequently, and when production rates fall off. In many shipyards the same air supply is used for blasting work and other tasks. Several blasters might use a central compressed air supply. Was the initial reading of pressure at the nozzle made with the same number of users drawing from the compressed air supply? If not, the actual pressure at the nozzle will change during the surface preparation task.

There are two important points that come from knowing the real pressure at the nozzle.

First, you can determine the range of pressures at the nozzle available to the blaster. The high point in the range is when the blaster is the only user of the compressed air supply. The low point occurs when the compressed air supply is working with full demand from other operations. If the expected production rate at the low point of this range is unacceptable then this is a warning that adding compressed air capacity is called for.

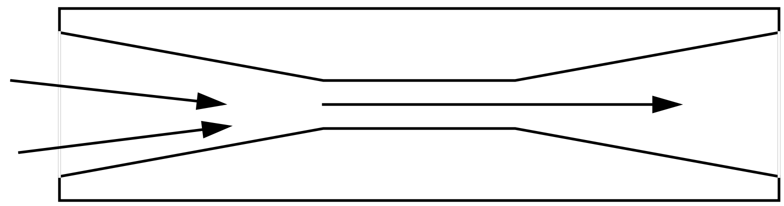
Second, by taking more frequent readings of pressure at the nozzle you can correctly estimate the theoretical production rate. Your lower than expected production rate might actually be all you can achieve.

C.2.3 Checking the Nozzle for Wear

A new abrasive blast nozzle is shaped inside to focus the stream of abrasive, see Figure 2 on page 22. This helps the abrasive flow from the nozzle maintain energy, improving its effectiveness. A worn nozzle reduces the focussing of the abrasive stream. There is greater internal scattering of abrasive particles before they exit the nozzle. There is also a less uniform stream of particles from the nozzle. As a result, the productivity of the abrasive is reduced.

A worn nozzle can appear to increase production rate. This occurs if the blaster compensates for the worn nozzle by increasing flow rate to restore the expected appearance of a blue flame at the throat of the blast nozzle. For the reasons described above, this is not an optimized production rate.

Figure: 2Example of Blast Nozzle Internal Shape



5. Overview of Abrasives Used at Shipyards

This section describes the properties of several classes of abrasive including mineral abrasives, recyclable abrasives, organic abrasives and specialty abrasives. Information is given on typical uses of abrasives in a shipyard setting, the suitability of abrasives to these typical tasks, and how abrasives are bought and used. Our aim in this section is to allow a user to make an early determination of the types of abrasive material most suited to typical shipyard surface preparation tasks. Alternatives to abrasive blasting are also briefly discussed.

A. Types of Abrasives

There are several ways to classify the types of abrasive commonly used in a shipyard setting. Material chemistry, material name, or material type and utility are all used by specifiers and/or manufacturers. For the purpose of this discussion we will be describing the properties of abrasives grouped according to the following types:

- Type I Metallic Abrasives - Sub-Divided into Grit and Shot.
- Type II Mineral Abrasives.
- Type III Recyclable Mineral Abrasives.
- Type IV Organic Media - Most commonly organic agricultural by-products.

Special Use Abrasives or Processes:

- Type V Plastic pellets.
- Type VI Sponge encapsulated abrasive.
- Type VII Sodium bicarbonate slurry.
- Type VIII Carbon dioxide pellets.

A.1 Properties of Metallic Abrasives

Steel shot and grit are among the most widely used abrasives for cleaning steel. [1, 2] Angular steel grit provides a more angular profile that results in a tighter bonding of coatings. Typically, however, a mixture of shot and grit are used to produce the desired profile. As metallic abrasives break down, additional grit is added to the recycled abrasive. The principal concern with the use of steel shot is that the rounded shot peens (compresses) the surface to remove rust and scale. This produces a shallower, more rounded profile with lower bonding of a coating. For the purposes of this guide, metallic abrasives are identified as Type I abrasives.

A.2 Properties of Mineral Abrasives

The U.S. Navy has issued military specification MIL-A-22262 on abrasives for ship hulls.[3] It includes two types of abrasives. One consists of inorganic materials (e.g., minerals and slags), and the other consists of organic materials (e.g., walnut shells). There is no classification according to particle size, instead, this is designated by the purchaser. SSPC-AB 1 is also a specification for mineral and slag abrasives.[4] For the purposes of this guide, general use mineral abrasives are iden-

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1. Giese II, J.A., Hogeland, R., and Sloan, R., N., JPCL Problem Solving Forum, July, 1989.
2. Cathcart, W., P., "Improving Productivity of Steel Grit Blasting", JPCL, Maintenance Tips, January, 1989, pp. 160-164.
3. Appleman, B., R., Navy Issues MIL-A-22262A on Abrasives for Ship Hulls", JPCL, Specification Review, May, 1987.
4. SSPC-AB 1 "Specification for Mineral and Slag Abrasives" 1991.

tified as Type II abrasives.

A.3 Properties of Recyclable Media

Recyclable media possess one simple characteristic which is that a significant portion of the media retains it shape and size after impacting the surface being cleaned. The class of abrasive with the highest degree of size and shape retention after impact is metallic abrasives. Because metallic media is typically composed of steel shot or grit it is magnetic. This also makes separating non-magnetic material such as removed paint or rust quite easy. (Other common methods for cleaning recycled media include weight based separation and electrostatic cleaning). Some mineral abrasives such as silicon carbide, aluminum oxide and garnet also provide a high level of reusable material. Plastic media can also be recycled.

Recycling of media requires an additional investment in media cleaning equipment such as separators and reclaimers. Recycling of abrasive media is worth considering when the user is critically concerned about any of the following:

- Reduction in total waste volume from surface preparation.
- Control of dust and airborne debris from surface preparation.
- Reduction in material use costs for surface preparation.

Only recyclable mineral abrasives need a special identifier for this guide as Type III abrasives.

A.4 Properties of Organic (Agricultural By-Product) Media

Organic agricultural by-product such as peach-pits, walnut shells or corn cobs are used where limited coating removal is needed or to re-key a profile on an existing coating. Organic by-product media is typically single use. Being softer than mineral abrasives it is often used to conduct partial coating removal - such as in retouching of anti-fouling paint during maintenance (or new construction). Organic by-product abrasives are identified herein as Type IV abrasives.

A.5 Special Use Abrasives and Processes

There are a number of surface preparation tasks well suited to special use abrasives. In addition alternatives to traditional abrasive blasting are available for ordinary or special surface preparation tasks.

Examples of special use abrasives include:

- Plastic Pellets - Type V Abrasives;
- Sponge Encapsulated Abrasive - Type VI Abrasives;
- Sodium Bicarbonate Slurry Abrasive - Type VII Abrasives, and;
- Dry Ice Pellets - Type VIII Abrasives.

Largely, plastic pellets are reserved for fine cleaning of metal parts and partial coating removal where the media can be recycled. Plastic abrasives are mostly used on soft metal (e.g., aluminum) cleaning. This method is being used more to replace chemical treatment of non-ferrous metals. Plastic media is typically recycled when used at the preferred lower nozzle pressures. High nozzle pressures can cause excessive break down of plastic media. For the purposes of this guide, plastic pellets are Type V abrasives.

Sponge encapsulated abrasive can reduce dust emissions from abrasive blasting. The sponge surrounding the abrasive cushions the abrasive so encapsulated abrasives are often recycled. (This also helps offset the higher up-front cost of the manufactured abrasive). The sponge encapsulant is also suited for grease and oil removal operations. Reuse of the encapsulated abrasive then demands a detergent cleaning of the used abrasive. To help preserve the rubber encapsulant, and

thus increase reuse of the sponge covered abrasive, lower nozzle pressures are recommended. Sponge encapsulated abrasives are identified as Type VI abrasives.

Sodium bicarbonate slurry blasting works well for coating removal from thin gauge metals, where the production of a new surface profile is not important, and in cleaning parts that might suffer damage by entrained mineral or metallic grit (such as motor housings). Removal with sodium bicarbonate slurries is also believed to help preserve a cleaned metal surface (due to the buffering effect of trace residues of carbonate salts which slows corrosion). Sodium bicarbonate (Soda) blasting has also been used in degreasing or oil removal operations. Soda blasting requires an initial investment in new equipment for handling a slurry of the sodium bicarbonate and water. Sodium bicarbonate abrasives are classified here as Type VII abrasives.

Dry Ice pellets were introduced over ten years ago for specialty cleaning of coated and uncoated surfaces. Originally, this method was marketed to engineers interested in oil and grease removal from concrete (and then steel) surfaces. Later, the technique received renewed attention as it significantly reduces generated waste. Although some mechanical cleaning action occurs, no profile is created. Dry Ice blasting was examined in detail by the U.S. Navy. The U.S. Navy's study[1] provided a summary of the relative production rates for Dry Ice cleaning versus common methods, for a variety of cleaning and surface preparation tasks. The low production rates in coating removal, coupled with high noise levels during cleaning, have discouraged its use as an alternative technique for surface cleaning and treatment. Initial equipment costs to invest in this method are also high. Dry Ice pellets are identified here as Type VIII abrasives.

B. Suggested Abrasive Types for Typical Shipyard Surface Preparation Tasks

There is a wide variety of uncoated and coated surfaces which might be prepared for painting on a vessel. This section of the guide attempts to describe the most common of these tasks and provide suggested choices of abrasive materials typically used to clean such surfaces. These suggestions are intended to assist the users of the guide to determine the productivity and the cost information most appropriate for the planned task.

Examples of Shipyard Surface Preparation Tasks

Typical tasks requiring surface preparation or surface treatment include:

- Cleaning of New Steel Plate or Steel Shapes - Task A
- Removal of Pre-Construction Primer - Task B
- Refurbishment or Recoating of Anti-Fouling Coatings - Task C
- Total Removal of Anti-Fouling and Anti-Corrosive Hull Coatings - Task D
- Removal or Refurbishment of Existing Deck Coatings - Task E
- Removal or Refurbishment of Coatings from Interior Spaces - Task F
- Removal or Refurbishment of Coatings from Superstructure - Task G
- Removal or Refurbishment of Existing Bilge or Ballast Coatings - Task H
- Cleaning of Machinery Housings - Task I
- Cleaning of Non-ferrous Surfaces (Aluminum, Zinc) - Task J
- Weld Seam Preparation - Task K
- Degreasing or Oil Removal - Task L

For some of these tasks there is no single abrasive choice, rather a type of abrasive that is well suited.

1. Presentation made at SNAME SP3 Panel Meeting, July, 1992.

Other influences on abrasive selection may include the need to reduce waste material volume, to limit the emission of airborne dusts, or to minimize exposure to silica or trace metals from the abrasive.

Coupling Typical Tasks with Abrasive Choices

Table 7 summarizes the abrasive (or process) choices available.

Table 7: Combination of Tasks and Abrasive or Process Choices

Task Description	Commonly Used Abrasive	Alternative Choice	Choice Based on Waste Reduction	Choice Based on Dust Control
Cleaning of New Steel Plate or Steel Sections - Task A	Type I	Type II	Type I or Type III	AP VI
Removal of Pre-Construction Primer - Task B	Type II	AP II	Type I or Type III	AP II
Refurbishment or Recoating of Anti-Fouling Coatings - Task C	Type II	Type IV	Type III or AP II	AP II
Total Removal of Anti-Fouling and Anti-Corrosive Hull Coatings - Task D	Type II	Type I	Type I, Type III, AP II, or AP VI	AP II
Removal or Refurbishment of Existing Deck Coatings - Task E	AP I (Type I Abrasives)	Type I	AP I	AP I
Removal or Refurbishment of Coatings from Interior Spaces - Task F	AP III	AP IV	AP IV	AP III
Removal or Refurbishment of Coatings from Superstructure - Task G	Type II	Type I	Type I or Type III	AP VI
Removal or Refurbishment of Existing Bilge or Ballast Coatings - Task H	Type II	Type I	AP II	AP V
Cleaning of Machinery Housings - Task I	AP III	Type VI or VII	Type VI or AP IV	AP III
Cleaning of Non-ferrous Surfaces (Aluminum, Zinc) - Task J	Type IV	Type V	Type VII	AP II
Weld Seam Preparation - Task K	Type II	AP III or IV	AP V	AP V
Degreasing or Oil Removal - Task L	None - SSPC-SP 1 Cleaning Used.	Type VI or Type VII	Type VI or Type VII	Type VII

The choices are made based on the following classifications:

- Most commonly used abrasive or abrasive type.
- Suggested alternative abrasive or abrasive type.
- Suggested type or process if waste reduction is a requirement.
- Suggested type or process if dust control is a requirement.

The table identifies these tasks according to the alphabetic codes given in “Examples of Shipyard Surface Preparation Tasks” on page 25. The types of abrasive correspond to those given in “Types of Abrasives” on page 23.

Using the Model with Pre-Selected Abrasives

In the database application model, the user is given the opportunity to make a preliminary selection of an abrasive type. To do so, they select the description most closely matching their task from a scrolling list.

The database application will then store that information, along with the commonly used abrasive type, suggested alternate materials and choices for reducing waste volume or dust emissions. This set of choices can be narrowed by users through selection from a scrolling list, or users can elect to make their final selection of abrasive during Step 7:, "Do You Wish to Compare With Other Disposable Abrasives?". This process is shown in Figure 1 on page 5 of this guide.

In the written form of this guide, the process still occurs at Step 7: on page 9, but instead the user of the guide is led to a table with all abrasives shown. The user of the guide has the option to review all the data in the table and make a choice of a suitable abrasive.

C. Alternatives to Abrasive Blasting

The marine industry is always examining alternatives to abrasive blasting. For the majority of tasks, abrasive blasting of one type or another remains the optimum method of choice. It combines the benefits of cost effective equipment investment, high productivity and strong operator familiarity. Alternatives do exist which have begun to make significant inroads on abrasive blasting for specific tasks.

Suggested alternate processes include:

- AP I - Portable rotary wheel blasting.
- AP II - High pressure water jetting.
- AP III - Power tool cleaning, without vacuum recovery of dust.
- AP IV - Power tool cleaning, with vacuum recovery of dust.
- AP V - Vacuum abrasive blasting.
- AP VI - Wet abrasive blasting.

The oldest of these alternative methods is the use of portable rotary wheel blasting equipment. The dominant use for this method (which depends on recycled metallic shot) is in cleaning of deck surfaces prior to placement of anti-skid coatings. This is identified for this guide as Alternate Process I (AP I). A newer entry is High Pressure Water Jetting (HPWJ), identified as Alternate Process II (AP II). This method has become a strong competitor for abrasive blasting at lower pressures with mineral or organic by-product media when performing refinishing of anti-fouling coatings on the hulls of vessels. There have even been studies made of the use of HPWJ in refurbishment of bilge and ballast tank spaces. HPWJ has the ability to significantly reduce solid waste volumes. HPWJ will not create a significant profile on the metal surface (nor will it remove existing profiles). There is considerable education required to easily accept HPWJ cleaned surfaces for

painting, because they look very different from abrasive blast cleaned surfaces. It is argued by HPWJ cleaning proponents that the process gives a chemically cleaner surface than that created by solid media. The HPWJ cleaned steel is subject to flash rusting. Some coating products show poorer performance when applied to a surface that has flash rusting. Other coating products perform well on a flash rusted surface. The compatibility between the coating and the flash rusted surface should be checked with the coating manufacturer. Use of inhibitors to retard flash rusting is less widely accepted by coating manufacturers.

For some tasks involving the cleaning of interior spaces or delicate machinery, the use of power tools (with, AP III, or without, AP IV, vacuum recovery of waste products) is most common. Finally, it is always possible to use abrasive blasting in conjunction with vacuum recovery of media, this is identified as AP V, or with water injection to suppress dust, AP VI. These are included in Table 7 on page 26 based on their suitability for the various surface preparation tasks.

6. Other Factors Affecting Abrasive Selection and Use

The decision process above allows you to compare one abrasive with another to see which one provides improved productivity or reduced consumption rates. You will also have to take into account other factors from your work process before making a final decision

A. Generic Abrasive Type

Some processes demand the use of a specific type of abrasive. Surfaces for thermal spraying of metals often demand a manufactured abrasive such as aluminum oxide. Cleaning of metal in a blasting room is well suited to the use of a metallic abrasive which can be reused.

B. Geographic Location

Many abrasives come from naturally occurring deposits or are by-products of local industrial processes. Procuring an abrasive from a local supplier reduces transportation costs.

C. Qualification Lists

Other constraints are imposed by customer specifications. A particular abrasive batch may not pass the requirements of a U.S. Navy or commercial specification for the product. Developing a list of Qualified Products and their suppliers will simplify the procurement process.

D. Estimated Quantity of Abrasive for Specific job or General Use.

The base rates and modification factors given earlier will enable you to develop an estimate for the quantity of material needed. Total abrasive consumption is given by the consumption rate per hour multiplied by the total number of hours required for surface preparation. Knowing the size of the area to be blast cleaned, total time for cleaning is given by area divided by the modified production rate. For instance, from Table 1 on page 10, with a number 8 nozzle at 100 psi, median productivity is 600 sq. ft., per hour. A job to clean 50,000 sq. ft. demands just over 83 hours. Table 1 on page 10 gives us the consumption rate in lbs of abrasive per hour. For the given operating conditions, this is just over one ton (2,000 lbs) of abrasive per hour. So our example task will need around eighty-three tons of mineral abrasive.

E. Determining Relevant Regulations

Your abrasive choice or blasting process may be influenced by local environmental or health regulations. You may have to use a recyclable abrasive, or reduce waste volumes. This can affect your abrasive material costs, and costs for waste disposal.

F. Estimated Cost for Purchase/Disposal

Typical relative costs for some abrasives are given in Table 8 on page 30. The cost for disposal depends on whether the waste product contains hazardous listed metals.

Table 8: Waagbo Data on Abrasives Used with Vacuum Blasting[a]

Abrasive Type	Hardness (Mohs or Rockwell Rc)	Bulk Density (lbs/ft.^{3})	Approx. Cost Per Pound (cents)
Aluminum Oxide	9.5	117-120	30-50
Steel Grit	50-60 Rc	270	25
Steel Grit	45 Rc	270	17-18
Garnet 1	7.5	150	15
Garnet 2	8-9	125	18-22
Coal Slag	7	90	5-8

a. McPhee,W. and Waagbo, S., "Evaluation of Abrasive Recycling Characteristics of Several Abrasives in Vacuum Blasting Equipment," SSPC 92-04 pp 37-43.

G. Quality Control on Receipt of Abrasives

There are simple quality control procedures one can use to confirm that the acquired abrasives are suited to the task. Specifically:

- Oil Content - Readily established by a simple mixing of the abrasive with water, an oily film indicates the abrasive may leave organic residues on the surface interrupting coating adhesion. A field method for this test is described in SSPC-AB 1.
- Salt Content - A simple conductivity test is defined in SSPC-AB 1, "Specification for Mineral and Slag Abrasives." Similar tests based on the mixing of abrasive with deionized water are also found in the ISO and MIL-A-22262A Specifications for Abrasives.
- Characteristic Constituents - Chiefly of concern is free silica, or certain heavy metals or copper. Obtain certification that the batch meets specification limits.
- Working Mix - this is measured in terms of sieve size distributions. Typical sieve size distributions are given in the ISO or SAE standards for metallic and mineral abrasives.

H. Importance of Surface Profile

Profile is an important attribute of the finished surface. The surface profile has two characteristics, profile depth and surface roughness (the complexity of the surface deformations created by an abrasive). The upshot of surface profile is an increased surface area for adhesion by a coating to the prepared surface.

Surface profile created by an abrasive is measured in accordance with ASTM D 4417. The most popular method for profile depth measurement involves the use of replica tape. ASTM D 4417 also allows the use of surface profile comparators. These provide an estimation of surface profile. Comparators also give an idea of the different types of roughness conditions produced by various abrasives. The type of surface profile created differs depending on the shape of the abrasive. Round abrasives (particularly metal shot) produces a peened appearance. Grits (both metallic and mineral) with angular character give an etched appearance. The differences in finished surface appearance are shown in Figure 3 through Figure 6 on page 31.

Figure: 3 Angular Jagged Appearance of Grit Blasted Surface (G25 Steel Grit)

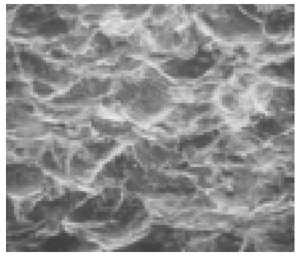


Figure: 4 Smoother Scalloped Surface From Shot Blasting (S280 Steel Shot)

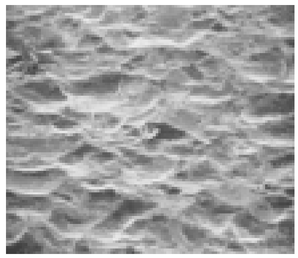


Figure: 5 Micro-Etched Appearance from Fine Mineral Abrasive (Staurolite)

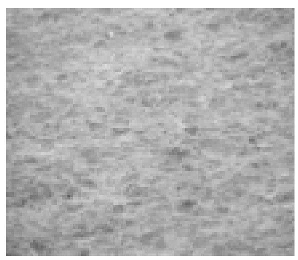
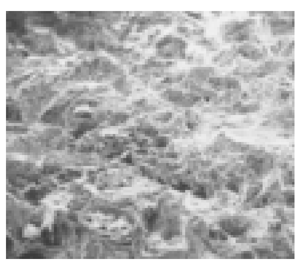


Figure: 6 Surface Shading from Inclusions of Dark Mineral Grit (Coal Slag)



Profile is also important in determining the choice of the abrasive in our decision flow, (Step 4: on page 8). The selection of profile depth has effects on the choice of abrasive, on its consumption, and on its productivity. First, it steers the user to choose abrasives of appropriate sizes. Second, there are differences in abrasive consumption and productivity from smaller to larger abrasive sizes. These differences in abrasive consumption are reflected in the data in our tables. The lower the needed profile, the greater the productivity (smaller abrasives are more productive than larger abrasives, more particles doing more work). The higher the profile, the higher the amount of abrasive consumed for each square foot of cleaning.

I. Importance of Factors Used in the Guide Model

The guide uses a decision flow to determine the expected production and consumption rates for a given surface preparation task. This section discusses the influence of some of the variables chosen during the decision process leading to a Data Table on production and consumption rates.

- Effect of changing the nozzle size and the pressure at the nozzle;
- Effect of changing the abrasive;
- Effect of changing the profile requirements, and;
- Effect of changing the degree of cleaning.

I.1 Effect of changing nozzle size and pressure at the nozzle

A strong industry consensus is that the optimum blasting pressure at the nozzle is between 90 and 100 psi. Lower pressures impart less energy to the particles, which lowers productivity. Lower pressures permit finer control of cleaning and reduce the breakdown rate of abrasives. Higher nozzle pressures increase particle energy, cleaning rate and wear of the nozzles and hoses. Higher pressures will also increase operator fatigue, which may result in less productivity over an entire work shift. Increasing pressure at the nozzle by 100% doubles both the production and consumption rate.

Nozzle sizes used in shipyard operations typically range from #6 (3/8 inch) to #8 (1/2 inch) sizes. For each 1/16 inch increase in diameter of the nozzle above 1/4 inch (#4 nozzle) there is an approximate increase in blasting productivity and consumption rate of 50%.

I.2 Effect of changing the abrasive

The type of abrasive used will affect production and consumption rates. The effect of changing from one abrasive to another depends on the properties of each abrasive.

Key abrasive properties affecting consumption rates include:

- Friability - Mineral abrasives are more friable than metallic abrasives. This limits their potential for reuse and recycling. Metallic abrasives are always more easily reused than recyclable mineral abrasives. Switching from a traditional mineral abrasive to a recyclable mineral abrasive can reduce consumption rates by 60 - 70%. Switching from a mineral abrasive to a recycled metallic abrasive can reduce consumption rates by 90 - 99%.
- Abrasive density - The denser an abrasive the higher the consumption rate (measured in weight used per hour). Abrasive density will not result in a higher volume of abrasive consumption. The relationship between abrasive density and consumption rate is linear.

The key abrasive characteristic affecting abrasive production rate is abrasive size. Abrasives with a higher proportion of small particles perform more work than those with a higher proportion of larger particles. Thus, less of the smaller particle abrasive is needed to do the same amount of work. A working mix of abrasive contains a range of particle sizes. Working mixes are created to achieve the desired profile requirements. There is a 30% decrease in the production rate when one goes from a low profile working mix to a medium profile working mix. Going from a medium profile mix to a high profile mix will cause a 50% drop in production rates.

I.3 Effect of changing profile requirements

The model in this guide defines three ranges of profile height. They are:

- Low Profile Range - Between 1.5 and 2.5 mils.
- Medium Profile Range - Between 2.5 and 4.0 mils
- High Profile Range - Over 4.0 mils.

Lowering profile ranges increases the production rate of surface preparation. Going from a high profile range to a low profile range can triple production rates.

I.4 Effect of changing degree of cleaning

Changing the degree of cleaning required has a dramatic impact on production rates. Cleaning rates for SSPC-SP 5 are approximately 80 - 90% of those for SSPC-SP 10 cleaning. Production rates double when going from SSPC-SP 10 to SSPC-SP 6 cleaning. There is another doubling in production rate on going from SSPC-SP 6 to SSPC-SP 7 cleaning.

Appendix 1. Major Factors Affecting Abrasive Selection and Costs

A. Factors Affecting Abrasive Selection:

The guide to selection of abrasives uses a task based approach to make an abrasive selection. This requires an understanding of the following factors.

- Condition of coating and substrate;
- Quality of surface (profile and cleanliness) required;
- Safety, health and environmental impact;
- Facility capabilities;
- Specifications, requirements and restrictions;
- Types of Abrasives;
- Productivity Estimate (square feet per hour), and;
- Consumption rate/recyclability (pounds of abrasive through nozzle, ratio of reusable material).

Based on the above criteria a suitable selection of abrasives can be made.

The task based approach will give a list of suitable abrasives. To shorten the list one can look at the costs for procuring an abrasive and the costs associated with disposal of any surface preparation waste.

B. Factors Affecting Abrasive Costs

The major factors influencing the cost of abrasive blasting include:

- The cost per ton of an abrasive. Typically metallic and manufactured abrasives are more expensive than by-product or mined mineral abrasives. The higher cost of metallic abrasives is offset by the rate of reuse. Some manufactured nonmetallic abrasives are also reusable.
- The estimated use rate of an abrasive for a surface preparation task. This differs depending on factors examined in the productivity modeling such as thickness of existing paint, pressure at nozzle, and nozzle size.
- The labor costs for a typical task. The labor rate used should be a fully burdened rate, including all applicable overheads.
- The costs for consumable equipment, such as nozzles, blast hoses, etc.
- The costs for disposal of materials. These costs will depend in part on your location and are dictated by the type of material being removed. If the coating contains heavy metals the cost could be quite high (hundreds of dollars per ton).
- The location of the task on or in a vessel. The default numbers represent the removal rates on sheets of steel plate. Removal rates from structural members, or in interior spaces will be lower, raising costs.
- The use of an alternative blasting method. The default numbers represent air abrasive blasting. Alternative methods may lower production rates.

Appendix 2. Relationships and Trade-offs in Abrasive Selections

An optimum choice of an abrasive will result in lowest abrasive material demands at the highest achievable production rates. The user is advised that there are relationships between these goals. For instance, increasing the target level of productivity will result in a larger degree of abrasive consumption. One must balance material consumption against the reduced labor cost for the surface preparation task. Some of the factors to be balanced are dictated by the operating conditions under which surface preparation is performed. Other factors are dictated by the characteristics of an abrasive material.

A. Examples of Relationships and Trends

Relationships influencing the selection of an abrasive are:

- The relationship between abrasive productivity and consumption to task costs;
- The relationship between desired surface quality and abrasive productivity;
- The relationship between initial condition and productivity, and;
- Relationship between abrasive characteristics and abrasive use.

A.1 Trends with Abrasive Productivity and Consumption

The operating conditions which influence abrasive consumption include:

- Nozzle Size - the larger the nozzle used, the greater the capacity to deliver abrasive.
- Pressure at the Nozzle - the higher the operating pressure, the greater the capacity to deliver abrasive.

The operating conditions which influence abrasive productivity include:

- Pressure at Nozzle - the greater the pressure, the higher the maximum value of square feet of surface cleaned per hour.
- Nozzle Size - the higher the nozzle diameter, at a constant pressure, the greater the volume of abrasive and the number of square feet cleaned per hour.

The desired surface quality also influences achievable productivity.

- A higher desired level of cleaning will result in a lower overall blasting productivity.

The original condition influences surface preparation productivity as follows:

- The thicker a coating film the lower the productivity of surface preparation.
- The greater the degree of rusting and pitting the lower the cleaning rate achieved.

Key relationships influenced by abrasive characteristics include:

- An abrasive with a high reuse factor (recyclable) will cost less in materials than a single use abrasive.
- An abrasive with a high reuse (recyclable) factor demands the use of higher capital cost equipment to clean and recycle.
- A harder abrasive is often subject to earlier breakdown, limiting reuse.
- A softer abrasive may have insufficient cutting power on old, thicker films.

Table 1: Trade-Offs for Abrasives of Different Hardness

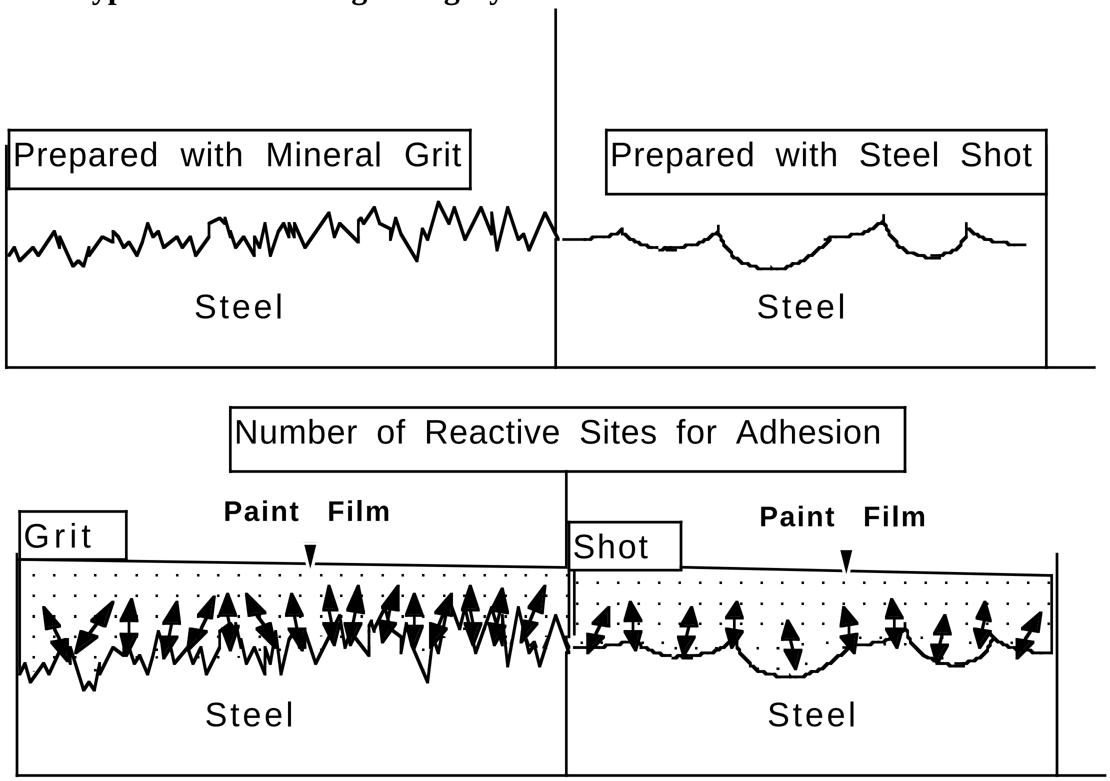
HARD	SOFT
Suited for harder metals.	Suited for softer metals.
Faster cleaning	More recycles
Higher profile*	Less wear on equipment
Suited for total coating removal and surface profiling.	Suited for coating removal without damaging substrate.

- A larger abrasive provides fewer particles impacting the surface, a smaller abrasive will greatly increase the number of total impacts increasing cleaning rate.
- A larger abrasive provides the bite needed to cut through a thick film, a smaller abrasive etches away thick films.

Appendix 3. Factors Affecting Abrasive Blast Cleaning at Shipyards

Abrasives are used in a shipyard setting for preparation of surfaces prior to coating. An abrasive will impart to a surface a mechanical roughening while removing contaminants or loose materials that interfere with coating adhesion. The diagram in Figure 1 below shows the result of this mechanical roughening process on a typical steel substrate.

Figure: 1 Typical Surface Roughening By Grit & Shot Abrasives



Abrasives provide a highly efficient method to increase adhesion and promote long coating life on new steel surfaces.

In a similar fashion abrasives may also etch an existing painted surface to improve adhesion of new coatings to existing ones.

A. Surface Preparation, Corrosion Protection and Coating Processes

Surface preparation plays a critical role in the coating process, it also provides an important measure of future corrosion prevention from a coating system.

- Surface preparation is a significant component of the total cost of a typical coating project. Upwards of one-third the cost of coating is attributable to surface preparation. Optimizing abrasive productivity can have important benefits in reducing the total coating process cost.
- The higher the quality of surface preparation the longer a coating system will provide corrosion protection to a structure or vessel. An SSPC-SP 6 “Commercial Blast Cleaning” specification provides less coating life than an SSPC-SP 10 “Near White Metal Blast Cleaning.” The benefits of SSPC-SP 5 “White Metal Blast Cleaning” over an SSPC-SP 10 cleaned surface are debatable.

- The higher the degree of surface preparation quality, the higher the cost of abrasive blast cleaning. Balancing preparation costs and coating life expectations is important. For instance, a minimum of an SSPC-SP 10 cleaning is typical before coating a surface for immersion service. Upgrading the surface preparation requirement to an SSPC-SP 5 "White Metal Cleaning" may only offer marginal improvement in service life, yet it can double preparation costs.
- Some surface preparation applications fall outside of the above examples. For example, when refurbishing existing anti-fouling paint alternative abrasives such as organic media are used. (Walnut shells, peach pits or pecan shells are examples of such organic media). The goal of organic media is to only remove loose material and lightly etch existing paint.

The guide document provides a means to understand the cost and productivity implications of abrasive blasting for surface preparation.

B. Alternatives to Abrasive Blasting

Abrasive blast cleaning (with mineral or metallic media) is only one way to prepare a surface for painting. As noted above in 3.A, specific tasks sometimes require the use of alternative media. On occasion alternatives to abrasive blasting are needed. Three examples serve to illustrate this point.

- Case 1 - Refurbishment of Anti-Fouling Coatings. One method for refurbishing anti-fouling coatings is the use of organic media to provide something close to an SSPC-SP 7 "Brush-Off Blast Cleaning" grade of surface preparation. This is still an abrasive blast cleaning process, as such it can create dusts and wastes which are difficult to control or handle. A recent technology adoption in U.S. Shipyards has been the use of high pressure water jetting. At pressures equal to or greater than 25,000 psi this process will remove loose materials from a surface. The process is "tunable" with a skilled operator, allowing removal of coatings layer by layer. This process is broadly defined in SSPC-SP 12/Nace Number 5 as a distinct series of surface preparation grades and processes.
- Case 2 - Repair or Refurbishment of Linings. An alternative to abrasive blasting for this task is the use of power tool cleaning. When only removing loose materials this falls into line with the quality requirements of SSPC-SP 3 "Power Tool Cleaning." When used to remove all coatings from a surface and impart a profile the method yields a surface meeting the quality requirements of SSPC-SP 11 "Power Tool Cleaning to Bare Metal."
- Case 3 - Deck Coating Removal. A common means to prepare decks is the use of portable rotary wheel blasting equipment. This uses steel shot to remove the often thick deck coatings. Use of traditional abrasive blasting methods to achieve the same end would be very time consuming.

C. How Abrasives are Used and Bought

Abrasives are purchased to meet a specific task or need. Some typical selection and use combinations are summarized Table 2 on page 39.

Table 2: Some Typical Abrasive Selection and Use Combinations

End-Use	Typical Selection (See Notes a and b)
Anti-Fouling Refurbishment	Organic Media (Walnut Shells)
Deck Coating Refurbishment	Metallic Shot (grade dictated by anchor pattern requirements)
De-Scaling of New Plate	Mixture of Abrasives - Metallic Grit and Shot
Removal of Existing Paint	Mineral Grit Abrasive

a. Abrasives are very versatile, thus the indicated selection is for the purposes of illustration only, an alternative selection is almost always available.

b. The grade of abrasive chosen will depend on the anchor profile requirement of the painting specification. Larger abrasives yield deeper profiles, smaller abrasives provide an etched surface which optimizes adhesion. Mixtures of larger and smaller abrasive particles are used in a "working mix" to optimize profile depth and coating adhesion.

The specific type of abrasive chosen also depends on available equipment within a shipyard. For instance, metallic grit provides economies through recycling and reuse. If the shipyard only has blasting equipment for single use abrasives, a mineral abrasive may be chosen for descaling operations.

C.1 Blast Cleaning Process

The blast cleaning process is directly impacted by the choice of abrasive. Blast cleaning process efficiency is directly influenced by the operating conditions of the blast cleaning equipment. For instance, abrasive use rates will increase with the use of larger nozzle sizes and higher pressures at the nozzle, these rates are also known to differ with the chosen abrasive, see Figure 2 on page 40 and Figure 3 on page 40.

Understanding the impact which an abrasive choice has on optimizing productivity while meeting specification requirements is key to making a good choice of abrasive.

Figure: 2 Effect of Nozzle Pressure on Productivity[1]

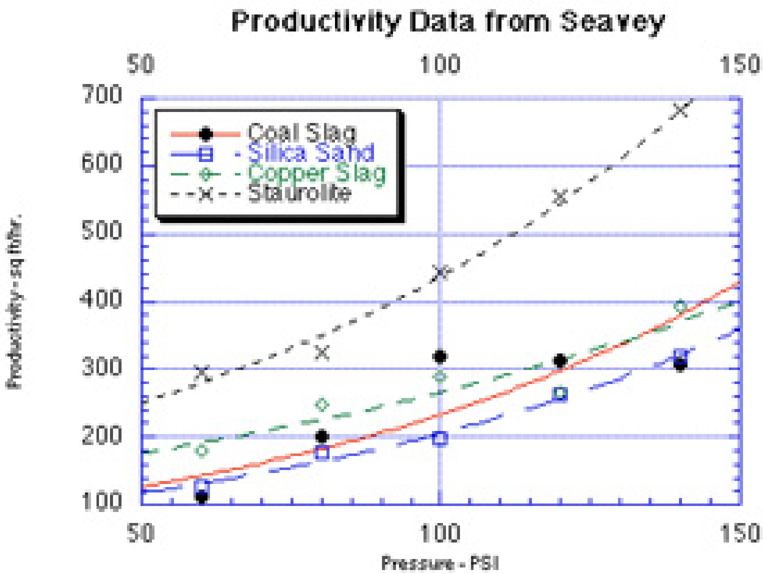
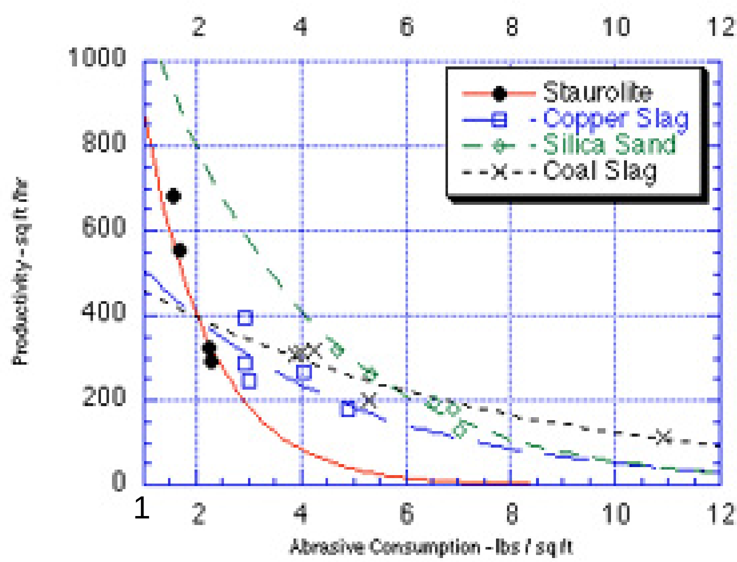


Figure: 3 Abrasive Productivity and Abrasive Use Rate[1].



1. Seavey, M., "Abrasive Blasting above 100 PSI", JPCL, July, 1985, pp. 26-37.

Appendix 4. Factors Limiting the Selection of Abrasives

Sometimes the choice of abrasive is influenced by factors other than optimizing productivity. For example, health and safety can play a role in your selection. Though a mineral abrasive such as silica sand is cheap and readily available it can pose a health risk to workers. An alternative abrasive may be chosen which is low in free silica in preference to silica sand, despite increased costs. Another constraint on selection are the requirements of external specifications. Examples of such specifications include MIL-A-22262 (from the U.S. Navy), SSPC-AB 1 and AB-3 (from SSPC), and the ISO specifications - 11124 parts 1 to 10 for metallic abrasives, or 11127 for mineral abrasives.

The type of surface profile required also dictates the final choice of abrasive or abrasive working mix.

A. Impact of Abrasive Use on Shipyards

Abrasive use has a number of practical and economic impacts on a shipyard. These impacts are explored in depth within the guide. Some of the key topic areas are summarized below.

A.1 Production Rate of Coating Process

As noted earlier, in 3.A, the surface preparation process is a significant component of the overall coating process costs. Providing the most efficient means to achieve a specified level of surface cleaning will reduce the costs of coating a vessel by improving the overall rate of the coating process. Costs are also associated with other factors directly linked to surface preparation. These are enumerated below.

A.2 Waste Generation

Mineral abrasives are a popular choice for surface preparation tasks. Mineral abrasives create larger volumes of waste than metallic abrasives, even if the mineral abrasive is reusable. Waste generation can have a higher impact if the coating product removed contains heavy metals or other materials which might fail a TCLP test. This increases costs for disposal of the generated waste. Hazardous waste disposal costs can be reduced in one of two ways. Some abrasives naturally reduce leachable values in TCLP testing to below hazardous levels. Choosing an alternate method of surface preparation, such as the use of recyclable abrasives, can reduce total waste volumes.

A.3 Health and Safety for Workers and Adjacent Trades

Like many industrial processes there are inherent dangers if abrasives are unwisely used. Some abrasives may pose higher risks than others when used for surface preparation, all abrasives should be used with caution. The type of risks associated with abrasives include:

- Dust Generation - which may impair breathing, or vision.
- Hearing Loss - due to the high decibel level of many blasting operations
- Physical Damage or Injury - due to the sharp cutting action of abrasive shot at high speeds under pressure from a blasting hose.

For blasting workers correct use of work processes and the wearing of personal protective equipment can minimize these risks.

Adjacent trades may find their work made less comfortable due to the noise levels or dusts created by abrasive blasting. Painters may find work ruined if dusts or stray abrasive are allowed

to fall into new uncured coating films.

Health and safety regulations are discussed in greater detail in Appendix Appendix 6. on page 46.

A.4 Other Environmental Issues

A variety of environmental issues may impact on abrasive choice and use. The recent HAPS rules do include provisions which could reduce the use of open air abrasive blasting. This in turn may spur the adoption of alternative approaches to abrasive blasting, or the substitution of alternative methods of surface preparation.

Environmental regulations are discussed in greater detail in Appendix Appendix 6. on page 46.

A.5 Cost

Cost is always an important consideration. There are the costs of an abrasive, and the costs of using an abrasive. The guide provides a means to estimate the cost of a surface preparation process through modeling. This modeling reflects the following factors:

- The cost per ton of an abrasive;
- The estimated use rate of an abrasive for a surface preparation task;
- The labor costs for a typical task;
- The costs for consumable equipment;
- The costs for disposal of materials;
- The location of the task on or in a vessel, and;
- The use of an alternative cleaning method.

The shipyard user of this guide can use the cost approach suggested in Appendix Appendix 5. on page 43 to compare the cost of their process with estimates made using the production and consumption rates in the guide's tables. To make such a cost comparison shipyards need to collect abrasive productivity and consumption rate data in a controlled manner. Guidelines for data collection are given in Section 4. on page 18 of the guide.

Equations for use in cost modeling are shown in Appendix 5.

Appendix 5. Equations for Use in Cost Modeling

A. The Cost Modeling Equations

Cost estimation begins with the estimate of production rate (P in sq. ft./hr) and consumption rate (C in pounds per hour). The following added information is needed to provide a reliable number for the cost of blast cleaning operations:

- Area to be blast cleaned in square feet, (A).
- Average number of hours per shift spent setting up equipment and staging for a work area (H1).
- Length of each shift (H2).
- Number of people per shift performing blast cleaning, (N1).
- Number of people per shift tending blast cleaning equipment, (N2).
- Number of shifts in each work-day (N3).
- Cost of the abrasive (typically in dollars per ton), (M1).
- Cost of labor (labor rates, including all taxes and overheads - $/hr,) (M2)[1]
- Cost of ($/hr) equipment operation, (M3)
- Cost of ($/hr) consumable equipment, (nozzles, hoses etc.), (M4)
- Waste disposal cost (S/Ton) (if a waste is hazardous also include the cost (S/Ton) of waste treatment prior to disposal), (M5)

The model computes the following quantities:

- (H3) -- Maximum hours available for surface preparation.
- (N4) -- Number of shifts used to complete a task.
- (N5) -- Total number of expended labor hours.
- (N6) --Total number of hours of equipment operation.
- (M6) -- Total labor cost for surface preparation.
- (M7) -- Total cost of equipment operation.
- (N8) -- Number of tons of abrasive used.
- (M8) -- Total cost of abrasive used.
- (M9) -- Total costs for consumable equipment.
- (M10) -- Total costs for waste disposal.

Before making the cost estimate, these numbers are used to calculate the following important data:

- Maximum hours available for surface preparation in each shift (H3):

$$H3 = H2 - H1 \tag{1}$$

- Number of shifts used to complete task (N4), for instance with only one shift per day:

$$N4 = \frac{A}{P} \div (H3 \times N1) \tag{2}$$

With more than one shift per day and one equipment set-up per shift equation 2 still applies. If there is only one equipment set up per day, but more than one shift per day then the number of required shifts (N4) becomes:

$$N4 = \frac{A}{P} \div \frac{[\{(H3 \times N1) + (\lfloor H2 \times N1 \rfloor \times \lfloor N3 - 1 \rfloor)\}]}{N3} \tag{3}$$

- Knowing the number of shifts you can then compute the total number of expended labor hours (N5):

1. Note that this assumes a constant labor rate for blasters and support personnel.

$$N5 = N4 \times \langle (N2 + N1) \times H2 \rangle \quad \textbf{(4)}$$

- Knowing the number of expended labor hours (N5) and the labor rate (M2) gives the total labor cost for surface preparation (M6):

$$M6 = N5 \times M2 \quad \textbf{(5)}$$

- The total number of hours of operation of the abrasive equipment (N6) is given by the number of shifts required (N4) times the length of each shift (H2). This assumes that equipment operation occurs at all hours of each shift, even during set-up. Thus the cost to operate the equipment (M7) is given by:

$$M7 = N6 \times M3 \quad \textbf{(6)}$$

If equipment operation is confined solely to hours of blasting then M7 is computed as follows:

$$M7 = \left(\frac{A}{P} \times M3\right) \div (N1) \quad \textbf{(7)}$$

- The number of tons of abrasive used (N8) is given by:

$$N8 = \frac{A}{P} \times \frac{C}{2000} \quad \textbf{(8)}$$

- The total cost of this abrasive (M8) is thus:

$$M8 = N8 \times M1 \quad \textbf{(9)}$$

- While the total costs for consumable equipment (M9) is given by:

$$M9 = \frac{A}{P} \times M4 \quad \textbf{(10)}$$

- Lastly, the total costs for waste disposal (M10) can be estimated from the number of tons of abrasive (N8), and the costs per ton for waste disposal (M5):

$$M10 = N8 \times M5 \quad \textbf{(11)}$$

The total estimated cost (M11) for the surface preparation task is the sum of the following cost components:

- The total labor cost (M6);
- The total equipment operation cost (M7);
- The total cost of abrasive consumed (M8);
- The total cost of equipment consumables (M9), and;
- The total costs for waste disposal (M10).

$$M11 = M6 + M7 + M8 + M9 + M10 \quad \textbf{(12)}$$

In the electronic version of the cost modeling utility all the needed bookkeeping is done for the user. In the text guide the user must calculate the answer to these equations.

B. Example of Use of Cost Modeling Equations

The following example illustrates the cost estimating process for a job in which there is only one shift per day of length eight hours and 1.5 hours are used to set-up equipment.

The values used for the various factors are:

- (A) -- Size of area to be blasted in square feet, 50,000 ft^2
- (H1) -- Average number of hours spent setting up equipment and staging for a work area per shift, 1.5 hours.
- (H2) -- Length of each shift, eight hours per shift.
- (N1) -- Number of people performing blasting in each shift, 2 blasters per shift.
- (N2) -- Number of people tending blasting equipment, one tender per shift.
- (N3) -- Number of shifts in each work-day, one shift per day.
- (M1) -- Abrasive cost (typically in dollars per ton), $100 per ton.

- (M2) -- Labor cost (fully burdened labor rates - \$/hr), \$40 per hour.
- (M3) -- Equipment operation cost (\$/hr), \$45 per hour.
- (M4) -- Consumable equipment cost, nozzles, hoses etc. - \$/hr), \$3.00 per hour.
- (M5) -- Waste disposal cost - \$/ton), (M5), \$30 per ton.
- In this example, the productivity estimate (P) is 250 ft^2 per hour and the estimated consumption rate (C) is 2,000 lbs/hr.

From this preliminary information the number of available hours per shift is given by substituting values into equation 1:

$$H3 = 8 - 1.5 = 6.5 \tag{13}$$

With only one shift per day the total number of shifts used is given by substituting values into equation 2, rounded up to the nearest whole number of shifts:

$$N4 = \frac{50000}{250} \div (6.5 \times 2) = 200 \div 6.5 \times 2 = 16 \tag{14}$$

The estimated total labor hours are then given is given by substituting values into equation 4:

$$N5 = 16 \times \langle (1 + 2) \times 8 \rangle = 384 \tag{15}$$

The estimated total labor cost is given by substituting values into equation 5:

$$M6 = 384 \times 40 = 15360 \tag{16}$$

By substituting values into equation 6 we can get an estimate of the total cost to operate the abrasive blasting equipment:

$$M7 = N4 \times H2 \times M3 = 128 \times 45 = 5760 \tag{17}$$

The number of tons of blasting abrasive is given by the following substitution into equation 8:

$$N8 = \frac{50000}{250} \times \frac{2000}{2000} = 200 \tag{18}$$

Thus from equation 9 one gets the total cost of abrasive:

$$M8 = 200 \times 100 = 20000 \tag{19}$$

The cost of consumable equipment items is obtained by substituting values into equation 10:

$$M9 = \frac{50000}{250} \times 3 = 600 \tag{20}$$

Finally, the cost to dispose of waste generated during surface preparation, using equation 11:

$$M10 = 200 \times 30 = 6000 \tag{21}$$

Thus, using equation 12, our costs for this surface preparation task are:

$$M11 = 15360 + 5760 + 20000 + 600 + 6000 = 47720 \tag{22}$$

Appendix 6. Regulatory Factors Affecting Abrasive Selection & Use

A. Assessing Health and Safety Impacts

Abrasives can create, or directly cause, health problems when used. Appropriate safety measures are needed during the use of any abrasive.

A.1 Overview of key health issues:

Many abrasives produce metallic or mineral dusts during use. Some of the dust is due to breakdown of an abrasive, other dusts are created by the breakdown of the paint materials or rust removed from the surface. There are two general threats due to dusts. First, breathable dusts can damage the lungs. Second, the components of some paints are known hazards, particularly those containing lead or other heavy metals. The fine breathable dusts made during abrasive blasting carry these toxins into the body. If the dusts are in the PM-10 category then they are considered respirable, (PM-10 is a measure of dusts of diameter less than or equal to 10 microns). Correct worker breathing protection is mandatory, improved ventilation of the working area is often required to maintain visibility.

Abrasive blasting is performed under high pressure, it propels abrasive material at high speeds through a narrow nozzle. This provides the conditions for a very noisy working area. The level of noise may easily exceed 125 dB, hearing protection is mandatory.

Abrasives travelling at high speed can quickly shred soft tissues like the human body.

A.2 Overview of Safe Use of Equipment

Pressurized blasting equipment poses its own set of safety requirements. Some safety measures are common to all blasting operations. The hoses must be of a type to prevent shocks from static electricity. Hose lengths shall be joined by metal couplings secured to the outside of the hose to avoid erosion and weakening of the couplings. Nozzles shall be attached to the hose by fittings that will prevent the nozzle from unintentionally becoming disengaged. Nozzle attachments shall be of metal and shall fit onto the hose externally. Hoses and all fittings used for abrasive blasting shall be inspected frequently to insure timely replacement before an unsafe amount of wear has occurred.

A dead man control device shall be provided at the nozzle end of the blasting hose. The dead man switch provides direct cutoff of abrasive flow, or alerts the pot tender by means of a visual and audible signal to cut off the flow. The dead man switch is vital to prevent injury if the blaster loses control of the hose. The pot tender shall be available at all times to respond immediately to the signal.

In addition to respirators, the blaster shall be protected against injury from exposure to the blast by appropriate protective clothing, including gloves. Surges from changes in pressure in the hose line can be large enough to throw the blaster off the staging. The blaster is protected by a safety belt when blasting is done from elevations where adequate protection against falling is not provided by railings.

Much of the work conducted in a shipyard setting involves staging of a work area on scaffolding or similar elevated work areas. Attendance to safety rules for tying off is mandatory when working at heights.

A.3 Health and Safety Regulations, Standards and Hazards

A.3.1 OSHA Marine Standard

The Federal Occupational Safety and Health Administration (OSHA) regulations which apply to the shipyard industry are found in 29 CFR 1915. While employers are required by law to adhere to the OSHA standards, they also provide employers with a valuable resource when developing worker health & safety programs. The comprehensive standards (such as the OSHA standard for lead, 1915.1025) provide a detailed outline for employers to follow which are proven effective in protecting workers from hazards.

The main health and safety concern when abrasive blasting is worker exposure to airborne concentrations of toxic metals such as lead and cadmium. The effect abrasive blasting has on a worker's health depends on a several factors. These factors include the presence and quantity of hazardous constituents of the coating(s) being removed and using recycled abrasive media as opposed to virgin media. Another factor which must be considered is the use of containment which concentrates contaminants in the worker's breathing zone and ultimately affects the level of personal protection required.

A.4 Standards for Airborne Toxins

A.4.1 Limits for Airborne Toxins from OSHA Shipyard Standards

Table 3 summarizes the comprehensive OSHA shipyard standards which regulate worker protection against exposure to airborne toxins.

Table 3: Summary of OSHA Shipyard Standards - Airborne Toxins

OSHA STANDARD	AIR CONTAMINANT	PERMISSIBLE EXPOSURE LIMIT (PEL) (8)-hour time weighted average (TWA)
1915.1025	lead	50 ug/m^3
1915.1001	asbestos	0.1 fiber per cubic centimeter
1915.1018	inorganic arsenic	10 ug/m^3
1915.1027	cadmium	5 ug/m^3

A.4.2 Lead

One of the most publicized health hazards associated with abrasive blast cleaning is that of lead exposure. In 1978, the Occupational Safety & Health Administration (OSHA) promulgated final lead standards for both general and shipyard industries. The general industry standard is identified as 29 CFR 1910.1025 "Lead" while the shipyard version of the lead standard is found in 29 CFR 1915.1025. Both standards became effective March 1, 1979.

The OSHA shipyard (29 CFR 1915.1025) requirements for lead are identical to the requirements for general industry (29 CFR 1910.1025). Both standards limit occupational exposure to lead to 50 ug/m3 (micrograms per cubic meter) based on an 8 hour time-weighted average. The basis for this action is evidence that exposure to lead must be maintained below this level to prevent material impairment of health or functional capacity to exposed employees.

Both standards contain provisions for the following items:

- Exposure monitoring;

- Methods of compliance;
- Respiratory protection;
- Protective work clothing and equipment;
- Housekeeping;
- Hygiene facilities and practices;
- Medical surveillance;
- Medical removal protection;
- Employee information and training;
- Signs;
- Record keeping, and;
- Observation of monitoring.

A.4.3 Asbestos

The OSHA shipyard standard for asbestos is found in 29 CFR 1915.1001. Asbestos has been the subject of extensive rule making by OSHA and other agencies. The operations that expose employees to asbestos are well known and thoroughly studied. While asbestos is rarely a component of coatings, asbestos may be encountered during surface preparation operations when surfaces containing asbestos are disturbed.

Asbestos is a confirmed human carcinogen and can permanently damage the lungs. The OSHA PEL for asbestos is 0.1 fiber per cubic centimeter. The effects are chronic in nature, usually 4 to 7 years of exposure are required before serious lung damage (fibrosis) results. [1]

OSHA's rule making efforts for asbestos have centered on evaluating the work practices that will best reduce asbestos exposures in the specific operations that expose workers to asbestos. The result is a standard that relies heavily on mandated work practices. In most situations, these work practices will result in employee exposure well below the PEL. In effect, the mandated work practices will assure that each asbestos worker is exposed to the lowest level of asbestos for the operation that the worker is doing.

A.4.4 Inorganic arsenic

The OSHA shipyard (29 CFR 1915.1018) requirements for inorganic arsenic exposure are identical to the requirements for general industry (29 CFR 1910.1018). Exposure to airborne concentrations of inorganic arsenic may cause lung cancer, and can be a skin irritant. The OSHA permissible exposure limit for inorganic arsenic is 10 ug/m^3.

A.4.5 Cadmium

The OSHA shipyard (29 CFR 1915.1027) requirements for cadmium exposure are identical to requirements for general industry (29 CFR 1910.1027). Cadmium is a metal that can adversely affect the lungs, liver, and kidneys. It may be absorbed into the body just like lead. Unlike lead, however, cadmium can also damage the lungs. The primary body organ affected is the kidney.

29 CFR 1915.1027 specifies a cadmium permissible exposure limit (PEL) of 5 ug/m^3.

A.4.6 Other Air Contaminants

In addition to the comprehensive shipyard standards, OSHA has established Permissible

1. Lewis, R.J., "Hazardous Chemical Desk Reference," 2nd ed., Van Nostrand Reinhold, 1991

Exposure Limits (PELS) for several other toxic air contaminants to which workers in shipyards may potentially be exposed to when abrasive blasting. Table 4 contains a summary of PELs taken from 29 CFR 1915 TABLE Z.

Table 4: Summary of PELs from 29CFR 1915 Table Z

SUBSTANCE	CAS NO.	mg./m^3
Chromium metal	7440-47-3	1
Copper, dusts	7440-50-8	1
Magnesium	1309-48-4	15
Nickel, metal	7440-02-0	1
Tin, inorganic compounds	7440-31-5	2
Tin, organic compounds	7440-31-5	0.1
Zinc, total dust	1314-13-2	15
Zinc, respirable dust	1314-13-2	5
Mineral dusts, (see note below)	Silica, crystalline	(See Note [a])

a. To calculate a PEL for crystalline silica (quartz) using the formula in Table Z-3, 1910.1000 use the formula in equation 23, where Quartz PEL is always equal to 10 mg/m^3:

Define a PEL for Crystalline Silica using equation 23:

$$\frac{QuartzPEL}{\%\ \text{Respirable Quartz} + 2} = PEL \quad \textbf{(23)}$$

Example, for a sample of respirable dust containing 13% quartz:

$$\frac{10\text{mg/m}^3}{13 + 2} = 0.67\text{mg/m}^3 \quad \textbf{(24)}$$

Therefore levels of quartz dust in the air that are above 0.67 mg/m^3 exceed the PEL

mg/m^3 = Milligrams of substance per cubic meter of air.

A.5 Health Monitoring Programs

Health monitoring programs are found in the comprehensive OSHA shipyard and general industry standards for lead, cadmium, inorganic arsenic and asbestos. Each standard includes health monitoring provisions for medical surveillance, and medical examinations. In addition to the medical surveillance, and medical examination provisions, the lead and cadmium standards contain requirements for biological monitoring and medical removal protection.

A.6 Hierarchy of Controls for Air Toxins

Each of the four (4) comprehensive shipyard standards identified above specify that employers utilize a hierarchy of control methods to reduce and maintain employee exposure below the Time Weighted Average (TWA) and/or excursion limits (PELs).

Specifically, OSHA requires that employers utilize engineering controls, work practice controls, and administrative controls to reduce and maintain employee exposures to airborne contaminants to or below the PEL, to the extent that such controls are feasible. When all feasible

engineering and work practice controls are insufficient to reduce employee exposure to or below the PEL, the employer shall supplement them by the use of respiratory protection.

The method preferred by OSHA for reducing worker exposures to airborne concentrations of hazardous dusts is by using engineering controls[1]. A common engineering control is method substitution, such as substituting chemical striping for abrasive blasting.

The second preferred method for reducing worker exposure involves using work practice control methods. Examples of work practice control methods include hygiene methods (i.e. decontamination facilities) and administrative control methods (job rotation).

The least preferred method of controlling these exposures is to use personal protective equipment (PPE). This is the control method most familiar to shipyard workers at the deckplate level. In almost all cases coating removal is carried out with the use of some type of PPE, (i.e. respirators). Even with well-designed ventilation systems in a containment in which abrasive blasting is occurring, workers will always be required to wear respiratory protective equipment. The OSHA shipyard standard governing respiratory protection is 29 CFR 1915.152. This standard defines the basic respiratory protection requirements against:

- atmospheres immediately dangerous to life;
- gaseous contaminants not immediately dangerous to life;
- particulate contaminants not immediately dangerous to life, and;
- combinations of gaseous and particulate contaminants not immediately dangerous to life.

Standard 1915.152 describes the basic respiratory protection requirements although it does not detail procedures (i.e.respiratory fit test procedure). However, 1915.152 does specify that when respirators are worn, employers are to ensure that:

- respirators are inspected, maintained, cleaned and disinfecting;
- employees are trained;
- air line respirators are fitted with a pressure regulating valve and filter;
- emergency respiratory equipment for tenders of confined spaces, and;
- respirators are used where men are working in atmospheres immediately dangerous to life or health (IDLH).

A.6.1 Confined Space Working Requirements

On October 24, 1994 OSHA published its final rule for Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment (29 CFR 1915 subpart B parts 1915.11 through 1915.16). This standard establishes the requirements for work in explosive and other dangerous atmospheres in vessels and vessel sections. The standard applies to shipbuilding, ship repairing, shipbreaking operations, and to related employment.

The shipyard standards provide the minimum shipyard safety standards for entering and working safely in vessel tanks and compartments in shipyard employment. The shipyard confined space standard ensures that workers entering confined spaces during abrasive blasting operations are protected against the hazards associated with confined spaces. Provisions of the standard include:

- atmospheric testing;
- identifying confined space hazards through labeling;
- appropriate protective clothing and equipment;

1. U.S. Department of Labor, Occupational Safety and Health Administration, 1993, OSHA 3142:13, "Lead in Construction"

- respiratory protection;
- employees may not enter a space whose atmosphere exceeds a PEL or is DLH;
- employee training, and;
- the establishment of a shipyard rescue team.

The final rule includes requirements for a shipyard competent person, a Marine Chemist, a Certified Industrial hygienist, or a Coast Guard authorized person to evaluate conditions within a confined or enclosed space and to institute measures to ensure that entrants are protected. It also contains requirements for posting unsafe spaces, for safe performance of cleaning, cold work, and hot work, and for classifying a person as a shipyard competent person.

B. Assessment of Environmental Regulations

B.1 Resource Conservation and Recovery Act (RCRA)

There are several Acts of Congress dealing with hazardous waste. By far the most significant is the Resource Conservation and Recovery Act (RCRA). Federal regulations governing waste management began in 1965 with the passage of the Solid Waste Disposal Act. This act was amended in 1970 by the Resource Recovery Act, which was amended in 1976 by the Resource Conservation and Recovery Act (RCRA). RCRA is divided into ten subtitles. These are referred to as subtitle A through J. The two subtitles of concern to the shipyard industry are Subtitle C; *Hazardous Waste* and Subtitle D; *Solid Waste* (non-hazardous wastes). Subtitle C regulates all aspects of hazardous waste management from its generation "cradle" to its disposal "grave" and contains provisions for generators, transporters and disposal facilities. RCRA has three main goals:

- To protect human health and the environment;
- To reduce waste and to conserve energy and natural resources, and;
- To reduce or eliminate the generation of hazardous wastes as expeditiously as possible.

In 1984 Congress strengthened RCRA by passing the Hazardous Waste and Solid Waste Amendments Act (HSWA). These amendments provided specific requirements for hazardous waste management and include the following technical standards:

- landfill disposal;
- leak detection systems;
- underground storage of petroleum products and CERCLA hazardous substances (see paragraph B.4 later in this section), and;
- prohibiting specific hazardous wastes from disposal.

B.2 Clean Air Act (CAA) and Amendments

The Clean Air Act originated in 1970 and was followed by amendments in 1977 and 1990. The Clean Air Act of 1970 required the EPA to establish standards for regulating emissions of six major air pollutants into the atmosphere. The EPA responded with the National Primary and Secondary Ambient Air Quality Standards (NAAQS). The NAAQS define levels of air quality which are necessary to protect the public health. Primary standards are defined as the levels of air quality that the administrator of the EPA judges as being necessary to protect the public health. The definition of "secondary" is similar, except that it addresses the protection of public welfare from known or anticipated effects of the pollutant. The definition is the levels of air quality that the administrator of the EPA judges as being necessary to protect the public welfare from any known or anticipated effects of a pollutant. As indicated, there are six air pollutants regulated under the original Clean Air Act of 1970. The six pollutants are:

- sulfur oxides;
- particulate matter;
- carbon monoxide;
- ozone;
- nitrogen dioxides, and;
- lead.

B.2.1 Particulate Matter and Lead

Within 40 CFR Part 50, there are two sections that address specific requirements that could be invoked on lead paint removal projects.

40 CFR 50.6, "National Primary and Secondary Ambient Air Quality Standards for Particulate Matter," restricts the amount of particulate matter that can be emitted from a source within a 24-hour period. The particulate matter in this case is defined as 10 microns or less in aerodynamic diameter. This size represents the respirable fractions of particulate, is equivalent to about 0.5 mil, and is termed PM-10. Particulates can be generated even when non-lead-containing paints are removed. Containment may be needed to control emissions.

Monitoring to determine compliance with the PM-10 criteria is accomplished using high volume air samplers The samplers are about six feet in height.

Section 40 CFR 50.12, "National Primary and Secondary Ambient Air Quality Standards for Lead." might be imposed when abrasive blast cleaning is used in the removal of lead paint. Monitoring for lead is based on collecting total suspended particulate (TSP). That is, all airborne emissions from the source are collected and analyzed, not just the dust that is 10 microns or less in size.

The National Ambient Air Quality Standards are not automatically invoked on lead paint removal projects. In fact, the use of such monitoring is the exception, rather than the rule. As the regulations are currently written, they address continuous monitoring of entire cities or regions to determine the overall air quality, as compared with the monitoring of individual, short-term projects, such as paint removal.

B.2.2 Relevant Portions of Clean Air Act Amendment

As part of the Clean Air Act Amendment of 1990, Congress added approximately 190 additional Hazardous Air Pollutants (HAPS) to the original list of 6 controlled pollutants.The HAPS list contains many of the chemicals that are commonly used as solvents on shipyard painting projects (i.e. xylene, toluene, methyl isobutyl ketone, and methyl ethyl ketone).

Facilities required to comply with the EPA HAPS regulations have more than ten tons per year of any single HAP, or more than 25 tons per year of all combined HAPS emissions. These facilities are referred to as major HAP emitting sources.

Only 25 of the U.S. shipyards qualify as major sources of HAP emissions. (There are an estimated 437 total shipyards in the United States). A major contributor to HAP emissions in shipyards are marine coatings. These may use HAP organic solvents for thinning and cleanup. Other shipyard operations using compounds which are "minor" contributors to HAP emission sources are welding, metal forming/cutting and abrasive blasting. Each of these sources contributes to the overall total when determining if a facility qualifies as a major source.

Particulate matter emissions from blasting can theoretically contribute to total HAP emissions. In a report submitted to the Environmental Protection Agency (EPA)[1] summarizing the results of a study performed at two model shipyards, HAP emission comparisons from two abra-

sive blast cleaning operations were made. One shipyard located on the east coast used black beauty as the abrasive while the other shipyard, located on the west coast, used copper slag. The results of this study indicate that the levels of HAP emissions from abrasive blasting are very minor compared to the amount of HAPs associated with paints and solvents. This report concludes that when emission rates are compared with the major source cutoffs of 10 tons per year for a single HAP, or an aggregate of 25 tons per year for all HAPs, emissions of HAPs from abrasive blast cleaning operations appears insignificant.

B.3 Clean Water Act

In 1972 Congress passed the Federal Water Pollution Control Act. With the passage of this act Congress initiated a national approach to meet the goal of "fishable and swimmable" waterways. In 1977 this act was amended and renamed the Clean Water Act (CWA). The 1977 amendments increased controls on toxic pollutants. In 1987 Congress passed an amendment to include an additional 129 specific toxic pollutants.

The Clean Water Act regulations are found in 40 CFR Subchapter D, "Water Programs," and encompass parts 100 through 149. The Clean Water Act and its associated regulations provide controls over the discharge of a pollutant into bodies of water; onto the ground, which could potentially be carried into a water supply; or into storm sewers.

The Clean Water Act also covers permits for discharging (dumping) debris into ground or surface water. If the intent is to allow the paint debris to fall directly into a body of water, or be flushed into a storm sewer (e.g., blast-clean a ship hull and allow the debris to fall directly into the water below), a permit would be required for this discharge. The permitting requirements are discussed in 40 CFR 122 and are referred to as National Pollutant Discharge Elimination System (NPDES) permits.

B.4 Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

CERCLA ("Superfund") provides for the emergency response, cleanup, liability, and compensation for hazardous substances released into the environment. CERCLA regulations are contained in 40 CFR Part 300.

CERCLA originally had a 5 year limitation. In 1986 this was extended by the Superfund Amendment Reauthorization Act (SARA). SARA was a reaction to an incident in Bhopal, India where methyl isocyanate was released, killing several thousand people.

With SARA, funding was extended from $1.6 billion to $8.5 billion and the Community Right-to-Know policy was established. Community Right-to-Know includes education, emergency planning, and notification to state and local authorities if releases of certain chemicals occur.

B.5 Federal Insecticide, Fungicide and Rodenticide Act

Amendments in 1972 to existing laws became known as the Federal Insecticide, Fungicide and Rodenticide Act. The regulations associated with this act are found in 40 CFR 150-189. The Federal Insecticide, Fungicide and Rodenticide regulations apply to a broad range of substances used to control unwanted organisms including insects, rodents, plants, and microorganisms such as mildew. Anti-fouling coatings containing organotin compounds and other heavy metal compound are subject to this regulation.

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1. Part of EPA Background Information Document EPA-453/R-94-071.

B.6 Relevant Controls on Abrasive Emissions and Disposal from General Industry Practice

B.6.1 Survey of State Environmental Regulations

There are approximately 437 shipyards in the United States which are involved to varying degrees in ship construction and repair. Of these 437 shipyards, 41 percent are distributed in 6 states. These 6 states, and the approximate number of shipyards located in each state, are listed in Table 5, below.

Table 5: Major States with Shipyards (NESHAP Background Data)[a]

STATE	NO. OF SHIPYARDS
Louisiana	74
California	34
Virginia	33
Mississippi	17
Alabama	15
Maine	7
TOTAL	180

a. Taken from EPA Background Information Document EPA-453/R-94-071.

Each of these 6 states was contacted and surveyed to determine what environmental requirements (i.e. air and water permitting requirements) are in effect when abrasive blasting operations are being performed.

The results of this survey are contained in Table 6 on page 55.

B.6.2 Air Emissions

The obvious solution in controlling abrasive emissions is not to generate. This may involve substituting removal methods (i.e. chemical stripping for abrasive blasting). However, for the purposes of our study this is not a feasible option. Dry abrasive blasting produces the largest amount of dust during paint removal operations. On paint removal projects, preventing the release of dust to the environment is accomplished by using containment with dust collection. This is true in both the shipyard industry and in general practice. Regardless of whether containment is used on an aircraft carrier, or on a storage tank it must be well designed, tight and properly maintained to prevent the release of fugitive emissions. As discussed earlier in the 5.C, one way to control emissions from abrasive blast cleaning projects is the use of containment with dust collectors. Various factors must be considered when selecting containment. These include:

- the type of structure, its size and elevation;
- location of structure (rural vs. Urban);
- permitting requirements;
- proximity to other buildings, or structures, and;
- local climate.

SSPC Guide 6, *Guide for Containing Debris Generated During Paint Removal Operations* specifies 4 containment classes for use with abrasive blast cleaning. Class 1A provides the greatest level of containment for dusts and debris generated from abrasive blasting, while class 4A provides a moderate level of dust and debris containment. Containment classes 1A through 3A

require the use of exhaust dust filtration for controlling releases of hazardous dusts to the environment.

The bottom line is that emissions (i.e. dust) generated from abrasive blasting, if uncontained, will contaminate both air and surrounding waterways. This holds true for both general industry and marine practice.

Table 6: Survey of Major Shipyard States Environmental Regulations

Air or Water	Requirement Imposed
California	
Air	Organized into 34 districts. Notification of activity is required and requirements may vary per district. Permits may be required for larger operations. Prohibitory rules apply in the form of visible opacity limits which vary from 20 to 40% per district. State wide standards have been adopted by the CA Air Resources Board. Nuisance rules also apply.
Water	Notification of abrasive blasting activity is required.
Virginia	
Air	Notification is required. Wet blasting processes - no permit required. Dry blasting processes may require permitting
Water	The state of Virginia considers shipyards a point source discharge and therefore a NPDES permit is required
Maine	
Air	Permit not required strictly for blasting, however a permit is required for VOC. Maine additionally has a visible emission requirement.
Water	Permit would be required for discharges
Louisiana	
Air	Permit required if blasting generates greater than 5 tons emissions/yr. (PM-10)
Water	Requires permits for point source discharges
Alabama	
Air	Permit not required
Water	Permit not required, but contractor may need to satisfy regulatory requirements depending upon emissions
Mississippi	
Air	Permit not required
Water	Permit not required

SSPC Guide 6 provides several methods for assessing the quantity of emissions generated as the result of surface preparation and paint removal methods. Method A (assessing visible emissions) provides immediate feedback and specifies the following emission frequencies:

- Level 0 Emissions—No visible emission.
- Level 1 Emissions—Random emissions of a cumulative duration of no more than 1% of the workday.
- Level 2 Emissions—Random emissions of a cumulative duration of no more than 5% of the workday.
- Level 3 Emissions—No more than 10% of the workday.
- Level 4 Emissions—Emissions are unrestricted and may occur at any time.

In addition to Method A, Guide 6 identifies three (3) additional methods for assessing emissions, These are:

- Method B - Ambient air monitoring for PM-10. This method utilizes high volume air samplers equipped with PM-10 heads to assess the total volume of particulate matter 10 microns (0.39 mils) or less in size that escape the contained work area.
- Method C - Occupational Monitoring of Area Emissions for Lead. Air quantity measurements for lead in accordance with NIOSH 7082 using personal monitors outside of areas or equipment that may potentially emit lead.
- Method D - EPA Ambient Air Monitoring for Toxic Metals. This method utilizes high volume air samplers equipped with total suspended particulate (TSP) heads. The filters are analyzed for lead in accordance with EPA 40 CFR Part 50.

On September 16, 1996 the California Environmental Protection Agency (Air Resources Board) issued an abrasive blasting advisory. This advisory indicates that the California Air Resources Board (ARB) has adopted air pollution standards for sandblasting operations. These regulations require that all abrasive blasting be conducted within a permanent building with the following exceptions allowing outdoor blasting:

- When steel or iron shot/grit is used exclusively, or;
- When blasting is conducted with an ARB certified abrasive, or if wet abrasive blasting, hydroblasting, or vacuum blasting techniques are used - and the item blasted exceeds 8 feet in any dimension, or is situated in a permanent location.

In addition, current California regulations apply a 40 percent opacity visible emission standard to all permissible outdoor blasting, and a 20 percent opacity standard to all permissible indoor blasting, regardless of the abrasive or the blasting technique used.

Title 17 of the California Code of Regulations requires the ARB to certify abrasives for permissible dry outdoor blasting as complying with specific performance standards.

B.7 Water Emissions

One navy shipyard faced drydock water pollution problems in meeting its National Pollutant Discharge Elimination System (NPDES) permit limits for discharges of copper, zinc, lead, chromium, and cadmium. Abrasive blasting and painting were believed to be the primary sources for copper and zinc in this shipyard's drydock waters. To meet its NPDES requirements this shipyard developed standards, procedures, and process controls necessary to gain an acceptable level of control over these pollutants.[1] By addressing a broad range of issues including policies, standards of performance, and treatment technologies this shipyard has been successful in reaching its discharge NPDES limitations. By utilizing a drydock water collection and treatment system this shipyard was able to collect and process wastewaters containing high levels of contaminants.

The best method for controlling fugitive emissions to surrounding waterways is to contain the structure. This control method applies to both marine and general practice regardless of the type of structure in question.

If poor containment is used, or containment is not maintained, emissions will be released to the surrounding environment. Waterways adjacent to abrasive blast projects will be contaminated from dust and debris as a result of fallout. The key therefore, in controlling emissions, is to use tight containment and to maintain containment once it is constructed.

1. "Drydock Water Pollution Control Efforts at Norfolk Naval Shipyard," Unpublished Paper <<Working on More Reference Info - This was one of Grabiak's references tracking down source>>.

B.8 Solid Waste Disposal

Abrasive blast cleaning produces large amounts of waste. The waste consists of a mixture of spent abrasive and the removed coating. Wastes generated from marine abrasive blast cleaning projects are subject to RCRA regulation and are classified as either solid (non-hazardous) wastes or hazardous wastes.

B.8.1 Determining of Wastes are Hazardous

To make this determination the wastes are analyzed to determine the leachable concentration of toxins. If this concentration exceeds limits set by the EPA the wastes are classified as hazardous.

RCRA defines extensive procedures for the handling of hazardous wastes. These requirements include provisions for the following items:

- Waste identification;
- Obtaining an EPA generator identification number;
- Manifesting of hazardous wastes sent off site;
- Packaging and labeling requirements;
- Emergency Response and Preparedness;
- Training, and;
- Record keeping requirements.

All wastes generated from abrasive blast cleaning will be classified as solid wastes.[1] EPA classifies solid waste as hazardous if either of the two following conditions are met:

1. It is specifically included on lists published by EPA (listed)
2. It meets any one of these four criteria (known as characteristics)

- Ignitability;
- Corrosivity;
- Reactivity, or;
- Toxicity.

Solid wastes generated by abrasive blasting, on general industry projects, which contain or are suspected to contain any hazardous component, must be tested to identify and quantify the hazardous constituent. This test method is the Toxicity Characteristics Leaching Procedure (TCLP). Currently there are eight metals regulated by RCRA. Lead, cadmium and chromium are those most commonly found in paints, these are listed in Table 7, on the following page.

1. EPA, 40 CFR 261.2 “Definition of a Solid Waste”

Table 7: Regulated Wastes Found in Solid Paint Wastes

METAL	EPA ID#	THRESHOLD (mg./liter)*
Arsenic	D004	5.0
Barium	D005	100.0
Cadmium	D007	1.0
Chromium	D007	5.0
Lead	D008	5.0
Mercury	D009	0.2
Selenium	D010	5.0
Silver	D011	20.0

B.8.2 Approaches for Minimizing Hazardous Waste

One method for controlling wastes (waste minimization) generated from abrasive blasting is substitution of method (i.e. engineering controls - using vacuum blasting as opposed to open blast cleaning).

Other methods for controlling wastes generated by abrasive blasting are:

- Steel Grit Additive - stabilization of abrasive media by iron (i.e. steel grit) addition, occurs by a plating reaction when the steel-containing debris is placed in the TCLP solution. The lead that goes into solution during the TCLP test plates out on the steel particles and is therefore no longer present in the liquid that is analyzed, but must be disposed of as a hazardous waste to avoid a possible CERCLA violation.
- Proprietary Non-Metallic Additive - Blastox™ is a proprietary non-metallic calcium-containing cementitious material. It is added to conventional non-metallic abrasives such as coal slag at about 15 to 20 percent (by weight). The manufacturer claims state that this product stabilizes the lead waste rendering it non-hazardous. Because the material is preblended and becomes part of the blasting media, a hazardous waste is never generated, so the provisions of RCRA do not apply. The manufacturer has also claimed that the lead is not subject to resolubilization in a landfill over time. It has been specified by a number of DOTs and the United States Army Corps of Engineers.
- Post-Blast Treatments - various post treatments have been studied: Portland cement, lime, and sodium bicarbonate, to name only a few. There are also some cement producers that can use the spent abrasive as a feed stock in cement kilns.

National Shipbuilding Research Program
Project Number 3-95-7

User’s Guide to Selection of Blasting Abrasives

Data Tables

Prepared for: Peterson Builders, Inc. 41 N. Third Avenue, Sturgeon Bay, WI 54235-0648
Prepared By: SSPC: The Society for Protective Coatings, 40 24th Street, Suite 600, Pittsburgh, PA 15222

The tables in this document are grouped in the following fashion:

- Tables of Consumption Data for Abrasives, tagged "CC" for Consumable Abrasive Consumption
- Tables of Abrasive Productivity Data, tagged "CP" for Consumable Abrasive Productivity
- Tables of Production Rate and Consumption Data for Recyclable Abrasives, tagged "RCC, RCP and PR" (These tables are presented on the same page).
- Tables of Production Rate Data for Abrasives, tagged "PC for Production Rate Consumable Abrasives."

Within each group data tables are organized in the following order:

- By Type of Original Condition
  1 - Light Rust, Millscale or Loose Paint
  2 - Tight Rust or Millscale
  3 - Thin Paint or Rusted Thin Paint
  4 - Thick Paint, Heavy Millscale or Heavy Pitted Rust

Then

- By Profile Range
  1 - Low Profile
  2 - Medium Profile
  3 - High Profile

Then

- By Degree of Cleaning
  1 - SSPC-SP 5
  2 - SSPC-SP 10
  3 - SSPC-SP 6
  4 - SSPC-SP 7

Then

- By Coating Hardness
  1 - Hard Coating
  2 - Soft Coating
  3 - New Steel

Each table bears a number corresponding to the type of job. This number scheme was described in the guide. For example, a table labeled 1111 corresponds to 1 - Light Rust, Millscale or Loose Paint; 1 - Low Profile; 1 - SSPC-SP 5; 1 - Hard Coating.
These labels are reproduced at the foot of each table, so you can identify the type of job without converting the numeric code.

Organization of Tables in This Document

Tables 1111 CC
Through 4241 CC

This Section of The Data Tables Contains Tables from 1111 through 4241 for Consumable Abrasive Consumption.

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **1111** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **1112** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables 1113 CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **1121** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **1122** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** 1123 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** 1131 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209	
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416	
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661	
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514	
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831	
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173	
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739	
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182	
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600	
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249	
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890	
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500	

Light Rust, Millscale or Loose Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **1132** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **1133** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **1141** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating **Low Profile Range** **SSPC-SP 5** **Tables** **1211** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **1212** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **1213** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **1221** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209	
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416	
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661	
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514	
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831	
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173	
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739	
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182	
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600	
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249	
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890	
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500	

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 1222 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **1223** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating **Low Profile Range** **SSPC-SP 6** **Tables** **1231** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating **Medium Profile Range** **SSPC-SP 6** **Tables** **1232** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** 1233 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **1241** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **Low Profile Range** **SSPC-SP 5** **Tables** **2111** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **2112** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **High Profile Range** **SSPC-SP 5** **Tables** **2113** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **Low Profile Range** **SSPC-SP 10** **Tables** **2121** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **2122** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **High Profile Range** **SSPC-SP 10** **Tables** **2123** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2131** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2132** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** 2133 **CC**

Operating Conditions		**Consumption Rate lbs/hr of Blasting**														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Hard Coating **Low Profile Range** **SSPC-SP 7** **Tables** **2141** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **2211** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **2212** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** 2213 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2221** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **2222** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating **High Profile Range** **SSPC-SP 10** **Tables** **2223** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2231** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2232** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209	
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416	
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661	
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514	
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831	
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173	
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739	
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182	
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600	
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249	
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890	
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500	

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **2233** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2241** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 5** | **Tables 2311 CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel **Low Profile Range** **SSPC-SP 5** **Tables** **2311** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel **Medium Profile Range** **SSPC-SP 5** **Tables** **2312** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **2312** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel **High Profile Range** **SSPC-SP 5** **Tables** **2313** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 5** | **Tables** **2313** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
Nozzle Size	Pressure (psi)	Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
		-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2321** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2321** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
Nozzle Size	Pressure (psi)	Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
		-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **2322** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2322 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10** | **Tables** **2323** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel **High Profile Range** **SSPC-SP 10** **Tables** **2323** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
Nozzle Size	Pressure (psi)	Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
		-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2331** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2331** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2332** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2332** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** **2333** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** **2333** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2341** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** 2341 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating **Low Profile Range** **SSPC-SP 5** **Tables** **3111** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **3112** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating **High Profile Range** **SSPC-SP 5** **Tables** **3113** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **3121** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **3122** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **3123** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **3131** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **3132** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating **High Profile Range** **SSPC-SP 6** **Tables** **3133** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **3141** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **3211** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables 3212 CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating **High Profile Range** **SSPC-SP 5** **Tables** **3213** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **3221** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **3222** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **3223** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating **Low Profile Range** **SSPC-SP 6** **Tables** **3231** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **3232** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating **High Profile Range** **SSPC-SP 6** **Tables** **3233** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** 3241 **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209	
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514	
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739	
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249	
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416	
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831	
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182	
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890	
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661	
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173	
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600	
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500	

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables 4111 CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **4112** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting																
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **4113** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables 4121 CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **4122** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **4123** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **4131** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 6** **Tables** **4132** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209	
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514	
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739	
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249	
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416	
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831	
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182	
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890	
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661	
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173	
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600	
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500	

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **High Profile Range** **SSPC-SP 6** **Tables** **4133** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **4141** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **4211** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **4212** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **4213** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **Low Profile Range** **SSPC-SP 10** **Tables** **4221** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **4222** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **4223** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | Low Profile Range | SSPC-SP 6 | Tables 4231 CC

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **4232** **CC**

Operating Conditions		Consumption Rate lbs/hr of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **4233** **CC**

Operating Conditions		**Consumption Rate lbs/hr of Blasting**														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	789	1052	1315	1157	894	894	999	1262	1368	1525	1052	1946	1262	1052	3209
7	90	1086	1448	1810	1593	1231	1231	1376	1738	1882	2100	1448	2679	1738	1448	4416
8	90	1392	1856	2320	2042	1578	1578	1763	2227	2413	2691	1856	3434	2227	1856	5661
6	100	864	1152	1440	1267	979	979	1094	1382	1498	1670	1152	2131	1382	1152	3514
7	100	1188	1584	1980	1742	1346	1346	1505	1901	2059	2297	1584	2930	1901	1584	4831
8	100	1518	2024	2530	2226	1720	1720	1923	2429	2631	2935	2024	3744	2429	2024	6173
6	110	920	1226	1533	1349	1042	1042	1165	1471	1594	1778	1226	2268	1471	1226	3739
7	110	1274	1699	2124	1869	1444	1444	1614	2039	2209	2464	1699	3143	2039	1699	5182
8	110	1623	2164	2705	2380	1839	1839	2056	2597	2813	3138	2164	4003	2597	2164	6600
6	125	1045	1393	1741	1532	1184	1184	1323	1672	1811	2020	1393	2577	1672	1393	4249
7	125	1448	1931	2414	2124	1641	1641	1834	2317	2510	2800	1931	3572	2317	1931	5890
8	125	1844	2459	3074	2705	2090	2090	2336	2951	3197	3566	2459	4549	2951	2459	7500

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **Low Profile Range** **SSPC-SP 7** **Tables** **4241** **CC**

This Section of The Data Tables Contains Tables from 1111 through 4241 for Consumable Abrasive Productivity

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.0	4.0	5.1	4.2	3.2	3.6	3.6	4.7	4.9	5.3	4.0	6.9	4.7	3.8	12.1
7	90	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
8	90	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.6	3.6	6.1	4.1	3.4	10.7
6	100	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5
7	100	2.5	3.3	4.1	3.4	2.6	3.0	3.0	3.8	4.0	4.3	3.3	5.6	3.8	3.1	9.9
8	100	2.3	3.1	3.8	3.2	2.5	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2
6	110	2.2	3.0	3.7	3.0	2.4	2.7	2.7	3.4	3.5	3.8	3.0	5.0	3.4	2.8	8.9
7	110	2.1	2.8	3.5	2.9	2.2	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.4
8	110	2.0	2.6	3.3	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8
6	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2
7	125	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.6	2.8	3.0	2.3	3.9	2.6	2.2	6.9
8	125	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.4	2.6	2.8	2.1	3.6	2.4	2.0	6.4

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **1111** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	4.6	6.1	7.6	6.3	4.9	5.5	5.5	7.0	7.3	7.9	6.1	10.3	7.0	5.8	18.2
7	90	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3
8	90	4.0	5.4	6.7	5.5	4.3	4.8	4.8	6.2	6.4	7.0	5.4	9.1	6.2	5.1	16.1
6	100	3.9	5.2	6.5	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7
7	100	3.7	5.0	6.2	5.1	4.0	4.5	4.5	5.7	5.9	6.4	5.0	8.4	5.7	4.7	14.9
8	100	3.5	4.6	5.8	4.7	3.7	4.1	4.1	5.3	5.5	6.0	4.6	7.8	5.3	4.4	13.8
6	110	3.3	4.4	5.5	4.6	3.5	4.0	4.0	5.1	5.3	5.8	4.4	7.5	5.1	4.2	13.3
7	110	3.2	4.2	5.3	4.3	3.4	3.8	3.8	4.8	5.1	5.5	4.2	7.2	4.8	4.0	12.6
8	110	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7
6	125	2.7	3.6	4.5	3.7	2.9	3.3	3.3	4.2	4.3	4.7	3.6	6.2	4.2	3.4	10.9
7	125	2.6	3.4	4.3	3.5	2.8	3.1	3.1	4.0	4.1	4.5	3.4	5.9	4.0	3.3	10.3
8	125	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.6

Light Rust, Millscale or Loose Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **1112** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	9.1	12.1	15.1	12.5	9.7	10.9	10.9	13.9	14.5	15.7	12.1	20.6	13.9	11.5	36.3
7	90	8.6	11.5	14.4	11.8	9.2	10.3	10.3	13.2	13.8	14.9	11.5	19.5	13.2	10.9	34.5
8	90	8.0	10.7	13.4	11.1	8.6	9.7	9.7	12.3	12.9	13.9	10.7	18.2	12.3	10.2	32.2
6	100	7.9	10.5	13.1	10.8	8.4	9.4	9.4	12.0	12.6	13.6	10.5	17.8	12.0	9.9	31.4
7	100	7.4	9.9	12.4	10.2	7.9	8.9	8.9	11.4	11.9	12.9	9.9	16.8	11.4	9.4	29.7
8	100	6.9	9.2	11.5	9.5	7.4	8.3	8.3	10.6	11.0	12.0	9.2	15.6	10.6	8.7	27.6
6	110	6.7	8.9	11.1	9.2	7.1	8.0	8.0	10.2	10.7	11.5	8.9	15.1	10.2	8.4	26.7
7	110	6.3	8.4	10.5	8.7	6.7	7.6	7.6	9.7	10.1	10.9	8.4	14.3	9.7	8.0	25.2
8	110	5.9	7.8	9.8	8.0	6.2	7.0	7.0	9.0	9.4	10.2	7.8	13.3	9.0	7.4	23.4
6	125	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.7	9.4	7.2	12.3	8.3	6.9	21.7
7	125	5.2	6.9	8.6	7.1	5.5	6.2	6.2	7.9	8.3	9.0	6.9	11.7	7.9	6.6	20.7
8	125	4.8	6.4	8.0	6.6	5.1	5.7	5.7	7.3	7.6	8.3	6.4	10.8	7.3	6.1	19.1

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **1113** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	2.8	3.7	4.6	3.8	3.0	3.3	3.3	4.3	4.5	4.8	3.7	6.3	4.3	3.5	11.2			
7	90	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5			
8	90	2.5	3.3	4.1	3.4	2.6	2.9	2.9	3.8	3.9	4.3	3.3	5.6	3.8	3.1	9.8			
6	100	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.8	4.2	3.2	5.4	3.7	3.0	9.6			
7	100	2.3	3.0	3.8	3.1	2.4	2.7	2.7	3.5	3.6	3.9	3.0	5.1	3.5	2.9	9.1			
8	100	2.1	2.8	3.5	2.9	2.2	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.4			
6	110	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1			
7	110	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.3	2.6	4.4	3.0	2.4	7.7			
8	110	1.8	2.4	3.0	2.5	1.9	2.1	2.1	2.7	2.9	3.1	2.4	4.1	2.7	2.3	7.2			
6	125	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.5	2.6	2.9	2.2	3.8	2.5	2.1	6.6			
7	125	1.6	2.1	2.6	2.2	1.7	1.9	1.9	2.4	2.5	2.7	2.1	3.6	2.4	2.0	6.3			
8	125	1.5	2.0	2.4	2.0	1.6	1.8	1.8	2.2	2.3	2.5	2.0	3.3	2.2	1.9	5.9			

Light Rust, Millscale or Loose Paint

Hard Coating **Low Profile Range** **SSPC-SP 10** **Tables** **1121** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	4.2	5.6	7.0	5.7	4.5	5.0	5.0	6.4	6.7	7.2	5.6	9.5	6.4	5.3	16.7
7	90	3.9	5.2	6.6	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7
8	90	3.7	4.9	6.1	5.1	3.9	4.4	4.4	5.6	5.9	6.4	4.9	8.3	5.6	4.7	14.7
6	100	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.8	6.2	4.8	8.2	5.5	4.6	14.4
7	100	3.4	4.5	5.7	4.7	3.6	4.1	4.1	5.2	5.4	5.9	4.5	7.7	5.2	4.3	13.6
8	100	3.2	4.2	5.3	4.3	3.4	3.8	3.8	4.8	5.1	5.5	4.2	7.2	4.8	4.0	12.7
6	110	3.0	4.1	5.1	4.2	3.2	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2
7	110	2.9	3.9	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.9	6.6	4.4	3.7	11.6
8	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.7
6	125	2.5	3.3	4.1	3.4	2.7	3.0	3.0	3.8	4.0	4.3	3.3	5.6	3.8	3.2	10.0
7	125	2.4	3.2	3.9	3.2	2.5	2.8	2.8	3.6	3.8	4.1	3.2	5.4	3.6	3.0	9.5
8	125	2.2	2.9	3.7	3.0	2.3	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8

Light Rust, Millscale or Loose Paint

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **1122** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	8.4	11.2	14.0	11.5	9.0	10.1	10.1	12.9	13.4	14.5	11.2	19.0	12.9	10.6	33.6
7	90	7.9	10.5	13.1	10.8	8.4	9.4	9.4	12.1	12.6	13.6	10.5	17.8	12.1	10.0	31.5
8	90	7.4	9.8	12.3	10.1	7.9	8.8	8.8	11.3	11.8	12.8	9.8	16.7	11.3	9.3	29.5
6	100	7.2	9.6	12.0	9.9	7.7	8.6	8.6	11.0	11.5	12.5	9.6	16.3	11.0	9.1	28.8
7	100	6.8	9.1	11.3	9.3	7.2	8.1	8.1	10.4	10.9	11.8	9.1	15.4	10.4	8.6	27.2
8	100	6.3	8.4	10.5	8.7	6.7	7.6	7.6	9.7	10.1	11.0	8.4	14.3	9.7	8.0	25.3
6	110	6.1	8.1	10.1	8.4	6.5	7.3	7.3	9.3	9.7	10.6	8.1	13.8	9.3	7.7	24.4
7	110	5.8	7.7	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.0	7.7	13.1	8.9	7.3	23.2
8	110	5.4	7.2	9.0	7.4	5.7	6.4	6.4	8.2	8.6	9.3	7.2	12.2	8.2	6.8	21.5
6	125	5.0	6.6	8.3	6.8	5.3	6.0	6.0	7.6	8.0	8.6	6.6	11.3	7.6	6.3	19.9
7	125	4.7	6.3	7.9	6.5	5.0	5.7	5.7	7.3	7.6	8.2	6.3	10.7	7.3	6.0	18.9
8	125	4.4	5.9	7.3	6.0	4.7	5.3	5.3	6.7	7.0	7.6	5.9	10.0	6.7	5.6	17.6

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables 1123 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.1	2.1	2.3	1.8	3.0	2.1	1.7	5.3
7	90	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	2.0	2.1	1.6	2.8	1.9	1.6	4.9
8	90	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.0	1.6	2.7	1.8	1.5	4.7
6	100	1.2	1.5	1.9	1.6	1.2	1.4	1.4	1.8	1.8	2.0	1.5	2.6	1.8	1.5	4.6
7	100	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.8	1.4	2.4	1.6	1.3	4.2
8	100	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.6	1.6	1.8	1.3	2.3	1.6	1.3	4.0
6	110	1.0	1.3	1.6	1.3	1.0	1.2	1.2	1.5	1.6	1.7	1.3	2.2	1.5	1.2	3.9
7	110	0.9	1.2	1.5	1.2	1.0	1.1	1.1	1.4	1.4	1.6	1.2	2.0	1.4	1.1	3.6
8	110	0.9	1.1	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.1	1.9	1.3	1.1	3.4
6	125	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
7	125	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
8	125	0.7	0.9	1.2	1.0	0.7	0.8	0.8	1.1	1.1	1.2	0.9	1.6	1.1	0.9	2.8

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **1131** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.0	2.7	3.3	2.8	2.1	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.5	8.0
7	90	1.8	2.5	3.1	2.5	2.0	2.2	2.2	2.8	2.9	3.2	2.5	4.2	2.8	2.3	7.4
8	90	1.8	2.4	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.1	2.4	4.0	2.7	2.2	7.1
6	100	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.6	2.8	3.0	2.3	3.9	2.6	2.2	6.9
7	100	1.6	2.1	2.6	2.2	1.7	1.9	1.9	2.4	2.5	2.7	2.1	3.6	2.4	2.0	6.3
8	100	1.5	2.0	2.5	2.1	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.1
6	110	1.5	1.9	2.4	2.0	1.6	1.8	1.8	2.2	2.3	2.5	1.9	3.3	2.2	1.8	5.8
7	110	1.4	1.8	2.3	1.9	1.4	1.6	1.6	2.1	2.2	2.3	1.8	3.1	2.1	1.7	5.4
8	110	1.3	1.7	2.2	1.8	1.4	1.5	1.5	2.0	2.1	2.2	1.7	2.9	2.0	1.6	5.2
6	125	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.1	1.6	2.7	1.8	1.5	4.8
7	125	1.1	1.5	1.8	1.5	1.2	1.3	1.3	1.7	1.8	1.9	1.5	2.5	1.7	1.4	4.4
8	125	1.1	1.4	1.8	1.4	1.1	1.3	1.3	1.6	1.7	1.8	1.4	2.4	1.6	1.3	4.2

Light Rust, Millscale or Loose Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **1132** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	4.0	5.3	6.7	5.5	4.3	4.8	4.8	6.1	6.4	6.9	5.3	9.1	6.1	5.1	16.0			
7	90	3.7	4.9	6.1	5.1	3.9	4.4	4.4	5.6	5.9	6.4	4.9	8.3	5.6	4.7	14.7			
8	90	3.5	4.7	5.9	4.9	3.8	4.2	4.2	5.4	5.7	6.1	4.7	8.0	5.4	4.5	14.1			
6	100	3.5	4.6	5.8	4.7	3.7	4.1	4.1	5.3	5.5	6.0	4.6	7.8	5.3	4.4	13.8			
7	100	3.2	4.2	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.2	7.2	4.9	4.0	12.7			
8	100	3.0	4.0	5.1	4.2	3.2	3.6	3.6	4.7	4.9	5.3	4.0	6.9	4.7	3.8	12.1			
6	110	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7			
7	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8			
8	110	2.6	3.4	4.3	3.5	2.8	3.1	3.1	4.0	4.1	4.5	3.4	5.8	4.0	3.3	10.3			
6	125	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.5			
7	125	2.2	2.9	3.7	3.0	2.3	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8			
8	125	2.1	2.8	3.5	2.9	2.2	2.5	2.5	3.2	3.4	3.6	2.8	4.8	3.2	2.7	8.4			

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables 1133 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Light Rust, Millscale or Loose Paint

Hard Coating **Low Profile Range** **SSPC-SP 7** **Tables** **1141** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1
7	90	1.9	2.6	3.2	2.6	2.0	2.3	2.3	2.9	3.1	3.3	2.6	4.3	2.9	2.4	7.7
8	90	1.8	2.4	3.0	2.5	1.9	2.1	2.1	2.7	2.9	3.1	2.4	4.1	2.7	2.3	7.1
6	100	1.7	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0
7	100	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.5	2.6	2.9	2.2	3.7	2.5	2.1	6.6
8	100	1.5	2.0	2.6	2.1	1.6	1.8	1.8	2.4	2.5	2.7	2.0	3.5	2.4	1.9	6.1
6	110	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
7	110	1.4	1.9	2.3	1.9	1.5	1.7	1.7	2.2	2.2	2.4	1.9	3.2	2.2	1.8	5.6
8	110	1.3	1.7	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.7	3.0	2.0	1.6	5.2
6	125	1.2	1.6	2.0	1.7	1.3	1.4	1.4	1.8	1.9	2.1	1.6	2.7	1.8	1.5	4.8
7	125	1.1	1.5	1.9	1.6	1.2	1.4	1.4	1.8	1.8	2.0	1.5	2.6	1.8	1.5	4.6
8	125	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.8	1.4	2.4	1.6	1.3	4.2

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **1211** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.0	4.0	5.1	4.2	3.2	3.6	3.6	4.7	4.9	5.3	4.0	6.9	4.7	3.8	12.1
7	90	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
8	90	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.6	3.6	6.1	4.1	3.4	10.7
6	100	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5
7	100	2.5	3.3	4.1	3.4	2.6	3.0	3.0	3.8	4.0	4.3	3.3	5.6	3.8	3.1	9.9
8	100	2.3	3.1	3.8	3.2	2.5	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2
6	110	2.2	3.0	3.7	3.0	2.4	2.7	2.7	3.4	3.5	3.8	3.0	5.0	3.4	2.8	8.9
7	110	2.1	2.8	3.5	2.9	2.2	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.4
8	110	2.0	2.6	3.3	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8
6	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2
7	125	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.6	2.8	3.0	2.3	3.9	2.6	2.2	6.9
8	125	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.4	2.6	2.8	2.1	3.6	2.4	2.0	6.4

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **1212** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured					
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.1	8.1	10.1	8.3	6.5	7.3	7.3	9.3	9.7	10.5	8.1	13.8	9.3	7.7	24.3
7	90	5.7	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.0	8.8	7.3	23.0
8	90	5.4	7.1	8.9	7.4	5.7	6.4	6.4	8.2	8.6	9.3	7.1	12.1	8.2	6.8	21.4
6	100	5.2	7.0	8.7	7.2	5.6	6.3	6.3	8.0	8.4	9.1	7.0	11.9	8.0	6.6	20.9
7	100	5.0	6.6	8.3	6.8	5.3	5.9	5.9	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.8
8	100	4.6	6.1	7.7	6.3	4.9	5.5	5.5	7.1	7.4	8.0	6.1	10.4	7.1	5.8	18.4
6	110	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	110	4.2	5.6	7.0	5.8	4.5	5.0	5.0	6.4	6.7	7.3	5.6	9.5	6.4	5.3	16.8
8	110	3.9	5.2	6.5	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.6
6	125	3.6	4.8	6.0	5.0	3.9	4.3	4.3	5.5	5.8	6.3	4.8	8.2	5.5	4.6	14.5
7	125	3.4	4.6	5.7	4.7	3.7	4.1	4.1	5.3	5.5	6.0	4.6	7.8	5.3	4.4	13.8
8	125	3.2	4.2	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.2	7.2	4.9	4.0	12.7

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **1213** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.9	2.5	3.1	2.5	2.0	2.2	2.2	2.8	3.0	3.2	2.5	4.2	2.8	2.4	7.4
7	90	1.7	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0
8	90	1.6	2.2	2.7	2.2	1.7	2.0	2.0	2.5	2.6	2.8	2.2	3.7	2.5	2.1	6.6
6	100	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.1	3.6	2.5	2.0	6.4
7	100	1.5	2.0	2.5	2.1	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
8	100	1.4	1.9	2.3	1.9	1.5	1.7	1.7	2.2	2.2	2.4	1.9	3.2	2.2	1.8	5.6
6	110	1.4	1.8	2.3	1.9	1.4	1.6	1.6	2.1	2.2	2.3	1.8	3.1	2.1	1.7	5.4
7	110	1.3	1.7	2.1	1.8	1.4	1.5	1.5	2.0	2.1	2.2	1.7	2.9	2.0	1.6	5.1
8	110	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.1	1.6	2.7	1.8	1.5	4.8
6	125	1.1	1.5	1.8	1.5	1.2	1.3	1.3	1.7	1.8	1.9	1.5	2.5	1.7	1.4	4.4
7	125	1.1	1.4	1.8	1.4	1.1	1.3	1.3	1.6	1.7	1.8	1.4	2.4	1.6	1.3	4.2
8	125	1.0	1.3	1.6	1.3	1.0	1.2	1.2	1.5	1.6	1.7	1.3	2.2	1.5	1.2	3.9

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** 1221 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.8	3.7	4.6	3.8	3.0	3.3	3.3	4.3	4.5	4.8	3.7	6.3	4.3	3.5	11.2
7	90	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5
8	90	2.5	3.3	4.1	3.4	2.6	2.9	2.9	3.8	3.9	4.3	3.3	5.6	3.8	3.1	9.8
6	100	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.8	4.2	3.2	5.4	3.7	3.0	9.6
7	100	2.3	3.0	3.8	3.1	2.4	2.7	2.7	3.5	3.6	3.9	3.0	5.1	3.5	2.9	9.1
8	100	2.1	2.8	3.5	2.9	2.2	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.4
6	110	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1
7	110	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.3	2.6	4.4	3.0	2.4	7.7
8	110	1.8	2.4	3.0	2.5	1.9	2.1	2.1	2.7	2.9	3.1	2.4	4.1	2.7	2.3	7.2
6	125	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.5	2.6	2.9	2.2	3.8	2.5	2.1	6.6
7	125	1.6	2.1	2.6	2.2	1.7	1.9	1.9	2.4	2.5	2.7	2.1	3.6	2.4	2.0	6.3
8	125	1.5	2.0	2.4	2.0	1.6	1.8	1.8	2.2	2.3	2.5	2.0	3.3	2.2	1.9	5.9

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 1222 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.6	7.4	9.3	7.6	5.9	6.7	6.7	8.5	8.9	9.6	7.4	12.6	8.5	7.0	22.2
7	90	5.2	7.0	8.7	7.2	5.6	6.3	6.3	8.0	8.4	9.1	7.0	11.9	8.0	6.6	21.0
8	90	4.9	6.6	8.2	6.8	5.2	5.9	5.9	7.5	7.9	8.5	6.6	11.1	7.5	6.2	19.7
6	100	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.3	6.4	10.9	7.4	6.1	19.2
7	100	4.5	6.0	7.5	6.2	4.8	5.4	5.4	6.9	7.2	7.8	6.0	10.2	6.9	5.7	18.1
8	100	4.2	5.6	7.0	5.8	4.5	5.1	5.1	6.5	6.7	7.3	5.6	9.6	6.5	5.3	16.9
6	110	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.0	5.4	9.2	6.2	5.1	16.2
7	110	3.9	5.1	6.4	5.3	4.1	4.6	4.6	5.9	6.2	6.7	5.1	8.8	5.9	4.9	15.4
8	110	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.7	6.2	4.8	8.1	5.5	4.5	14.3
6	125	3.3	4.4	5.5	4.6	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.3
7	125	3.1	4.2	5.2	4.3	3.4	3.8	3.8	4.8	5.0	5.5	4.2	7.1	4.8	4.0	12.6
8	125	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** 1223 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	0.9	1.2	1.5	1.2	1.0	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.6
7	90	0.8	1.1	1.4	1.1	0.9	1.0	1.0	1.3	1.3	1.4	1.1	1.9	1.3	1.0	3.3
8	90	0.8	1.0	1.3	1.1	0.8	0.9	0.9	1.2	1.3	1.4	1.0	1.8	1.2	1.0	3.1
6	100	0.8	1.0	1.3	1.1	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.1
7	100	0.7	0.9	1.2	1.0	0.8	0.8	0.8	1.1	1.1	1.2	0.9	1.6	1.1	0.9	2.8
8	100	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
6	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
7	110	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
8	110	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	0.9	1.0	0.8	1.3	0.9	0.7	2.3
6	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1
7	125	0.5	0.7	0.8	0.7	0.5	0.6	0.6	0.8	0.8	0.8	0.7	1.1	0.8	0.6	2.0
8	125	0.5	0.6	0.8	0.6	0.5	0.6	0.6	0.7	0.7	0.8	0.6	1.1	0.7	0.6	1.9

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **1231** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.1	2.1	2.3	1.8	3.0	2.1	1.7	5.3
7	90	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	2.0	2.1	1.6	2.8	1.9	1.6	4.9
8	90	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.0	1.6	2.7	1.8	1.5	4.7
6	100	1.2	1.5	1.9	1.6	1.2	1.4	1.4	1.8	1.8	2.0	1.5	2.6	1.8	1.5	4.6
7	100	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.8	1.4	2.4	1.6	1.3	4.2
8	100	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.6	1.6	1.8	1.3	2.3	1.6	1.3	4.0
6	110	1.0	1.3	1.6	1.3	1.0	1.2	1.2	1.5	1.6	1.7	1.3	2.2	1.5	1.2	3.9
7	110	0.9	1.2	1.5	1.2	1.0	1.1	1.1	1.4	1.4	1.6	1.2	2.0	1.4	1.1	3.6
8	110	0.9	1.1	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.1	1.9	1.3	1.1	3.4
6	125	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
7	125	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
8	125	0.7	0.9	1.2	1.0	0.7	0.8	0.8	1.1	1.1	1.2	0.9	1.6	1.1	0.9	2.8

Light Rust, Millscale or Loose Paint

Soft Coating **Medium Profile Range** **SSPC-SP 6** **Tables** **1232** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.6	3.6	6.1	4.1	3.4	10.7
7	90	2.5	3.3	4.1	3.4	2.6	2.9	2.9	3.8	3.9	4.2	3.3	5.6	3.8	3.1	9.8
8	90	2.4	3.1	3.9	3.2	2.5	2.8	2.8	3.6	3.8	4.1	3.1	5.3	3.6	3.0	9.4
6	100	2.3	3.1	3.8	3.2	2.5	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2
7	100	2.1	2.8	3.5	2.9	2.3	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.4
8	100	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1
6	110	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8
7	110	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2
8	110	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.6	2.8	3.0	2.3	3.9	2.6	2.2	6.9
6	125	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.4	2.5	2.8	2.1	3.6	2.4	2.0	6.4
7	125	1.5	2.0	2.4	2.0	1.6	1.8	1.8	2.3	2.4	2.5	2.0	3.3	2.3	1.9	5.9
8	125	1.4	1.9	2.3	1.9	1.5	1.7	1.7	2.2	2.2	2.4	1.9	3.2	2.2	1.8	5.6

Light Rust, Millscale or Loose Paint

Soft Coating **High Profile Range** **SSPC-SP 6** **Tables** **1233** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **1241** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.7	4.9	6.2	5.1	4.0	4.4	4.4	5.7	5.9	6.4	4.9	8.4	5.7	4.7	14.8
7	90	3.5	4.7	5.9	4.9	3.8	4.2	4.2	5.4	5.7	6.1	4.7	8.0	5.4	4.5	14.1
8	90	3.3	4.4	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.7	4.4	7.4	5.0	4.1	13.1
6	100	3.2	4.3	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.3	7.3	4.9	4.1	12.8
7	100	3.0	4.1	5.1	4.2	3.2	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2
8	100	2.8	3.7	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.7	6.4	4.3	3.6	11.2
6	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8
7	110	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
8	110	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.6
6	125	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
7	125	2.1	2.8	3.5	2.9	2.3	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.5
8	125	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8

Tight Rust or Millscale

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **2111** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.6	7.4	9.3	7.6	5.9	6.7	6.7	8.5	8.9	9.6	7.4	12.6	8.5	7.0	22.2
7	90	5.3	7.1	8.9	7.3	5.7	6.4	6.4	8.2	8.5	9.2	7.1	12.1	8.2	6.7	21.3
8	90	4.9	6.5	8.2	6.7	5.2	5.9	5.9	7.5	7.8	8.5	6.5	11.1	7.5	6.2	19.6
6	100	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.3	6.4	10.9	7.4	6.1	19.2
7	100	4.6	6.1	7.6	6.3	4.9	5.5	5.5	7.0	7.3	7.9	6.1	10.4	7.0	5.8	18.3
8	100	4.2	5.6	7.0	5.8	4.5	5.1	5.1	6.5	6.7	7.3	5.6	9.6	6.5	5.3	16.9
6	110	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.1	5.4	9.2	6.2	5.2	16.3
7	110	3.9	5.2	6.5	5.3	4.1	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.5
8	110	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.7	6.2	4.8	8.1	5.5	4.5	14.3
6	125	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
7	125	3.2	4.2	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.2	7.2	4.9	4.0	12.7
8	125	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables 2112 CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	11.1	14.8	18.5	15.3	11.9	13.3	13.3	17.0	17.8	19.3	14.8	25.2	17.0	14.1	44.5
7	90	10.6	14.2	17.7	14.6	11.4	12.8	12.8	16.3	17.0	18.5	14.2	24.1	16.3	13.5	42.6
8	90	9.8	13.1	16.3	13.5	10.5	11.8	11.8	15.0	15.7	17.0	13.1	22.2	15.0	12.4	39.2
6	100	9.6	12.8	16.0	13.2	10.2	11.5	11.5	14.7	15.4	16.6	12.8	21.8	14.7	12.2	38.4
7	100	9.1	12.2	15.2	12.6	9.7	11.0	11.0	14.0	14.6	15.8	12.2	20.7	14.0	11.6	36.6
8	100	8.4	11.2	14.1	11.6	9.0	10.1	10.1	12.9	13.5	14.6	11.2	19.1	12.9	10.7	33.7
6	110	8.1	10.8	13.6	11.2	8.7	9.8	9.8	12.5	13.0	14.1	10.8	18.4	12.5	10.3	32.5
7	110	7.8	10.4	12.9	10.7	8.3	9.3	9.3	11.9	12.4	13.5	10.4	17.6	11.9	9.8	31.1
8	110	7.2	9.6	12.0	9.9	7.7	8.6	8.6	11.0	11.5	12.4	9.6	16.3	11.0	9.1	28.7
6	125	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.1	10.6	11.5	8.8	15.0	10.1	8.4	26.4
7	125	6.4	8.5	10.6	8.7	6.8	7.6	7.6	9.7	10.2	11.0	8.5	14.4	9.7	8.0	25.4
8	125	5.8	7.8	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.1	7.8	13.2	8.9	7.4	23.3

Tight Rust or Millscale

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **2113** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.3	4.4	5.5	4.5	3.5	3.9	3.9	5.0	5.3	5.7	4.4	7.5	5.0	4.2	13.2
8	90	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	12.1
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.8	3.8	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.8	6.4	4.3	3.6	11.3
8	100	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
7	110	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.6
8	110	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
8	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2

Tight Rust or Millscale

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables 2121 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0				
7	90	4.9	6.6	8.2	6.8	5.3	5.9	5.9	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.7				
8	90	4.5	6.0	7.6	6.2	4.8	5.4	5.4	7.0	7.3	7.9	6.0	10.3	7.0	5.7	18.1				
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3				
7	100	4.2	5.7	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.4	5.7	9.6	6.5	5.4	17.0				
8	100	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6				
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6				
7	110	3.6	4.8	6.0	5.0	3.9	4.3	4.3	5.5	5.8	6.3	4.8	8.2	5.5	4.6	14.4				
8	110	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2				
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.7	4.6	3.8	11.9				
7	125	2.9	3.9	4.9	4.1	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8				
8	125	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8				

Tight Rust or Millscale

Hard Coating | Medium Profile Range | SSPC-SP 10 | Tables 2122 CP

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	10.0	13.3	16.6	13.7	10.7	12.0	12.0	15.3	16.0	17.3	13.3	22.6	15.3	12.7	39.9
7	90	9.9	13.2	16.5	13.6	10.5	11.8	11.8	15.1	15.8	17.1	13.2	22.4	15.1	12.5	39.5
8	90	9.0	12.1	15.1	12.4	9.6	10.8	10.8	13.9	14.5	15.7	12.1	20.5	13.9	11.4	36.2
6	100	8.6	11.5	14.4	11.9	9.2	10.4	10.4	13.2	13.8	15.0	11.5	19.6	13.2	10.9	34.6
7	100	8.5	11.3	14.1	11.7	9.1	10.2	10.2	13.0	13.6	14.7	11.3	19.2	13.0	10.7	33.9
8	100	7.8	10.4	13.0	10.7	8.3	9.3	9.3	11.9	12.5	13.5	10.4	17.6	11.9	9.9	31.1
6	110	7.3	9.7	12.2	10.0	7.8	8.8	8.8	11.2	11.7	12.6	9.7	16.5	11.2	9.2	29.2
7	110	7.2	9.7	12.1	9.9	7.7	8.7	8.7	11.1	11.6	12.5	9.7	16.4	11.1	9.2	29.0
8	110	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.2	10.6	11.5	8.8	15.0	10.2	8.4	26.5
6	125	5.9	7.9	9.9	8.2	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.5	9.1	7.5	23.7
7	125	5.9	7.8	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.8	13.3	9.0	7.5	23.5
8	125	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.6	9.3	7.2	12.2	8.3	6.8	21.6

Tight Rust or Millscale

Hard Coating **High Profile Range** **SSPC-SP 10** **Tables** **2123** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
7	90	1.5	2.0	2.6	2.1	1.6	1.8	1.8	2.3	2.5	2.7	2.0	3.5	2.3	1.9	6.1
8	90	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
6	100	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.3	2.2	1.8	5.8
7	100	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
8	100	1.3	1.7	2.1	1.7	1.3	1.5	1.5	1.9	2.0	2.2	1.7	2.9	1.9	1.6	5.1
6	110	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	1.9	2.1	1.6	2.8	1.9	1.5	4.9
7	110	1.1	1.5	1.9	1.5	1.2	1.4	1.4	1.7	1.8	2.0	1.5	2.6	1.7	1.4	4.5
8	110	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.9	1.4	2.4	1.6	1.4	4.3
6	125	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	125	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	125	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5

Tight Rust or Millscale

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2131** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**						
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	2.5	3.3	4.2	3.4	2.7	3.0	3.0	3.8	4.0	4.3	3.3	5.7	3.8	3.2	10.0			
7	90	2.3	3.1	3.8	3.2	2.4	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2			
8	90	2.2	2.9	3.7	3.0	2.4	2.7	2.7	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8			
6	100	2.2	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.5	3.7	2.9	4.9	3.3	2.7	8.6			
7	100	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9			
8	100	1.9	2.5	3.2	2.6	2.0	2.3	2.3	2.9	3.0	3.3	2.5	4.3	2.9	2.4	7.6			
6	110	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.2	2.4	4.1	2.8	2.3	7.3			
7	110	1.7	2.3	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.3	3.8	2.6	2.1	6.8			
8	110	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.1	3.7	2.5	2.0	6.4			
6	125	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0			
7	125	1.4	1.8	2.3	1.9	1.5	1.7	1.7	2.1	2.2	2.4	1.8	3.1	2.1	1.7	5.5			
8	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3			

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2132** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0			
7	90	4.6	6.1	7.7	6.3	4.9	5.5	5.5	7.1	7.4	8.0	6.1	10.4	7.1	5.8	18.4			
8	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7			
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3			
7	100	4.0	5.3	6.6	5.4	4.2	4.8	4.8	6.1	6.3	6.9	5.3	9.0	6.1	5.0	15.8			
8	100	3.8	5.1	6.3	5.2	4.0	4.6	4.6	5.8	6.1	6.6	5.1	8.6	5.8	4.8	15.2			
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6			
7	110	3.4	4.5	5.6	4.6	3.6	4.1	4.1	5.2	5.4	5.9	4.5	7.7	5.2	4.3	13.5			
8	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.2	5.6	4.3	7.3	4.9	4.1	12.9			
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	11.9			
7	125	2.8	3.7	4.6	3.8	2.9	3.3	3.3	4.2	4.4	4.8	3.7	6.2	4.2	3.5	11.0			
8	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.5			

Tight Rust or Millscale

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **2133** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Tight Rust or Millscale

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2141** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.5	3.3	4.1	3.4	2.6	3.0	3.0	3.8	4.0	4.3	3.3	5.6	3.8	3.1	9.9
7	90	2.4	3.1	3.9	3.2	2.5	2.8	2.8	3.6	3.8	4.1	3.1	5.4	3.6	3.0	9.4
8	90	2.2	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.5	3.8	2.9	4.9	3.3	2.8	8.7
6	100	2.1	2.8	3.6	2.9	2.3	2.6	2.6	3.3	3.4	3.7	2.8	4.8	3.3	2.7	8.5
7	100	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1
8	100	1.9	2.5	3.1	2.6	2.0	2.2	2.2	2.9	3.0	3.2	2.5	4.2	2.9	2.4	7.5
6	110	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2
7	110	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.7	2.8	3.0	2.3	3.9	2.7	2.2	6.9
8	110	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.4	2.5	2.8	2.1	3.6	2.4	2.0	6.4
6	125	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
7	125	1.4	1.9	2.4	1.9	1.5	1.7	1.7	2.2	2.3	2.4	1.9	3.2	2.2	1.8	5.6
8	125	1.3	1.7	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.2	1.7	2.9	2.0	1.6	5.2

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **2211** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	3.7	4.9	6.2	5.1	4.0	4.4	4.4	5.7	5.9	6.4	4.9	8.4	5.7	4.7	14.8			
7	90	3.5	4.7	5.9	4.9	3.8	4.2	4.2	5.4	5.7	6.1	4.7	8.0	5.4	4.5	14.1			
8	90	3.3	4.4	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.7	4.4	7.4	5.0	4.1	13.1			
6	100	3.2	4.3	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.3	7.3	4.9	4.1	12.8			
7	100	3.0	4.1	5.1	4.2	3.2	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2			
8	100	2.8	3.7	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.7	6.4	4.3	3.6	11.2			
6	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8			
7	110	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4			
8	110	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.6			
6	125	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8			
7	125	2.1	2.8	3.5	2.9	2.3	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.5			
8	125	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8			

Tight Rust or Millscale

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **2212** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	7.4	9.9	12.4	10.2	7.9	8.9	8.9	11.4	11.9	12.9	9.9	16.9	11.4	9.4	29.8
7	90	7.1	9.5	11.8	9.7	7.6	8.5	8.5	10.9	11.4	12.3	9.5	16.1	10.9	9.0	28.4
8	90	6.5	8.7	10.9	9.0	7.0	7.8	7.8	10.0	10.5	11.3	8.7	14.8	10.0	8.3	26.1
6	100	6.4	8.5	10.7	8.8	6.8	7.7	7.7	9.8	10.2	11.1	8.5	14.5	9.8	8.1	25.6
7	100	6.1	8.1	10.2	8.4	6.5	7.3	7.3	9.3	9.7	10.6	8.1	13.8	9.3	7.7	24.4
8	100	5.6	7.5	9.4	7.7	6.0	6.7	6.7	8.6	9.0	9.7	7.5	12.7	8.6	7.1	22.5
6	110	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.7	9.4	7.2	12.3	8.3	6.9	21.6
7	110	5.2	6.9	8.6	7.1	5.5	6.2	6.2	7.9	8.3	9.0	6.9	11.7	7.9	6.6	20.7
8	110	4.8	6.4	8.0	6.6	5.1	5.7	5.7	7.3	7.6	8.3	6.4	10.8	7.3	6.0	19.1
6	125	4.4	5.9	7.3	6.1	4.7	5.3	5.3	6.8	7.1	7.6	5.9	10.0	6.8	5.6	17.6
7	125	4.2	5.6	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.3	5.6	9.6	6.5	5.4	16.9
8	125	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **2213** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	8.9
7	90	2.2	2.9	3.7	3.0	2.3	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
8	90	2.0	2.7	3.4	2.8	2.1	2.4	2.4	3.1	3.2	3.5	2.7	4.6	3.1	2.6	8.1
6	100	1.9	2.6	3.2	2.6	2.0	2.3	2.3	2.9	3.1	3.3	2.6	4.4	2.9	2.4	7.7
7	100	1.9	2.5	3.1	2.6	2.0	2.3	2.3	2.9	3.0	3.3	2.5	4.3	2.9	2.4	7.5
8	100	1.7	2.3	2.9	2.4	1.8	2.1	2.1	2.7	2.8	3.0	2.3	3.9	2.7	2.2	6.9
6	110	1.6	2.2	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.2	3.7	2.5	2.1	6.5
7	110	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.1	3.6	2.5	2.0	6.4
8	110	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.5	2.0	3.3	2.3	1.9	5.9
6	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
7	125	1.3	1.7	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.7	3.0	2.0	1.7	5.2
8	125	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.1	1.6	2.7	1.8	1.5	4.8

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** 2221 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured					
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.3	4.4	5.5	4.5	3.5	3.9	3.9	5.0	5.3	5.7	4.4	7.5	5.0	4.2	13.2
8	90	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	12.1
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.8	3.8	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.8	6.4	4.3	3.6	11.3
8	100	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
7	110	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.6
8	110	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
8	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2

Tight Rust or Millscale

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2222 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	6.7	8.9	11.1	9.2	7.1	8.0	8.0	10.3	10.7	11.6	8.9	15.2	10.3	8.5	26.7	
7	90	6.6	8.8	11.0	9.0	7.0	7.9	7.9	10.1	10.5	11.4	8.8	14.9	10.1	8.3	26.3	
8	90	6.1	8.1	10.1	8.3	6.5	7.3	7.3	9.3	9.7	10.5	8.1	13.7	9.3	7.7	24.2	
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0	
7	100	5.7	7.5	9.4	7.8	6.0	6.8	6.8	8.7	9.1	9.8	7.5	12.8	8.7	7.2	22.6	
8	100	5.2	6.9	8.6	7.1	5.5	6.2	6.2	7.9	8.3	9.0	6.9	11.7	7.9	6.6	20.7	
6	110	4.9	6.5	8.1	6.7	5.2	5.8	5.8	7.5	7.8	8.4	6.5	11.0	7.5	6.2	19.5	
7	110	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.3	6.4	10.9	7.4	6.1	19.2	
8	110	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.6	5.9	10.0	6.8	5.6	17.6	
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9	
7	125	3.9	5.2	6.6	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7	
8	125	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.8	6.2	4.8	8.1	5.5	4.6	14.4	

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** 2223 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.1	1.5	1.9	1.5	1.2	1.3	1.3	1.7	1.8	1.9	1.5	2.5	1.7	1.4	4.5
7	90	1.0	1.4	1.7	1.4	1.1	1.2	1.2	1.6	1.6	1.8	1.4	2.3	1.6	1.3	4.1
8	90	1.0	1.3	1.6	1.3	1.0	1.2	1.2	1.5	1.6	1.7	1.3	2.2	1.5	1.2	3.9
6	100	1.0	1.3	1.6	1.3	1.0	1.2	1.2	1.5	1.5	1.7	1.3	2.2	1.5	1.2	3.8
7	100	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
8	100	0.8	1.1	1.4	1.2	0.9	1.0	1.0	1.3	1.3	1.5	1.1	1.9	1.3	1.1	3.4
6	110	0.8	1.1	1.4	1.1	0.9	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
7	110	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
8	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.1	1.2	1.0	1.6	1.1	0.9	2.9
6	125	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.1	0.9	1.5	1.0	0.8	2.6
7	125	0.6	0.8	1.0	0.8	0.7	0.7	0.7	0.9	1.0	1.1	0.8	1.4	0.9	0.8	2.4
8	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	0.9	1.0	0.8	1.3	0.9	0.7	2.3

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2231** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
7	90	1.5	2.0	2.6	2.1	1.6	1.8	1.8	2.3	2.5	2.7	2.0	3.5	2.3	1.9	6.1
8	90	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
6	100	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.3	2.2	1.8	5.8
7	100	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
8	100	1.3	1.7	2.1	1.7	1.3	1.5	1.5	1.9	2.0	2.2	1.7	2.9	1.9	1.6	5.1
6	110	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	1.9	2.1	1.6	2.8	1.9	1.5	4.9
7	110	1.1	1.5	1.9	1.5	1.2	1.4	1.4	1.7	1.8	2.0	1.5	2.6	1.7	1.4	4.5
8	110	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.9	1.4	2.4	1.6	1.4	4.3
6	125	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	125	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	125	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5

Tight Rust or Millscale

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** 2232 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	7.0	4.7	3.9	12.3
8	90	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.6
8	100	2.5	3.4	4.2	3.5	2.7	3.0	3.0	3.9	4.0	4.4	3.4	5.7	3.9	3.2	10.1
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
7	110	2.3	3.0	3.8	3.1	2.4	2.7	2.7	3.5	3.6	3.9	3.0	5.1	3.5	2.9	9.0
8	110	2.1	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.4	3.7	2.9	4.9	3.3	2.7	8.6
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	125	1.8	2.4	3.1	2.5	2.0	2.2	2.2	2.8	2.9	3.2	2.4	4.2	2.8	2.3	7.3
8	125	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** 2233 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2241** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	3.7	4.9	6.2	5.1	4.0	4.4	4.4	5.7	5.9	6.4	4.9	8.4	5.7	4.7	14.8				
7	90	3.5	4.7	5.9	4.9	3.8	4.2	4.2	5.4	5.7	6.1	4.7	8.0	5.4	4.5	14.1				
8	90	3.3	4.4	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.7	4.4	7.4	5.0	4.1	13.1				
6	100	3.2	4.3	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.3	7.3	4.9	4.1	12.8				
7	100	3.0	4.1	5.1	4.2	3.2	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2				
8	100	2.8	3.7	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.7	6.4	4.3	3.6	11.2				
6	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8				
7	110	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4				
8	110	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.6				
6	125	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8				
7	125	2.1	2.8	3.5	2.9	2.3	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.5				
8	125	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8				

Tight Rust or Millscale

New Steel **Low Profile Range** **SSPC-SP 5** **Tables** **2311** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	3.7	4.9	6.2	5.1	4.0	4.4	4.4	5.7	5.9	6.4	4.9	8.4	5.7	4.7	14.8				
7	90	3.5	4.7	5.9	4.9	3.8	4.2	4.2	5.4	5.7	6.1	4.7	8.0	5.4	4.5	14.1				
8	90	3.3	4.4	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.7	4.4	7.4	5.0	4.1	13.1				
6	100	3.2	4.3	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.3	7.3	4.9	4.1	12.8				
7	100	3.0	4.1	5.1	4.2	3.2	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2				
8	100	2.8	3.7	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.7	6.4	4.3	3.6	11.2				
6	110	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8				
7	110	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4				
8	110	2.4	3.2	4.0	3.3	2.5	2.9	2.9	3.7	3.8	4.1	3.2	5.4	3.7	3.0	9.6				
6	125	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8				
7	125	2.1	2.8	3.5	2.9	2.3	2.5	2.5	3.2	3.4	3.7	2.8	4.8	3.2	2.7	8.5				
8	125	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.5	7.8				

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 5** | **Tables 2311 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.6	7.4	9.3	7.6	5.9	6.7	6.7	8.5	8.9	9.6	7.4	12.6	8.5	7.0	22.2
7	90	5.3	7.1	8.9	7.3	5.7	6.4	6.4	8.2	8.5	9.2	7.1	12.1	8.2	6.7	21.3
8	90	4.9	6.5	8.2	6.7	5.2	5.9	5.9	7.5	7.8	8.5	6.5	11.1	7.5	6.2	19.6
6	100	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.3	6.4	10.9	7.4	6.1	19.2
7	100	4.6	6.1	7.6	6.3	4.9	5.5	5.5	7.0	7.3	7.9	6.1	10.4	7.0	5.8	18.3
8	100	4.2	5.6	7.0	5.8	4.5	5.1	5.1	6.5	6.7	7.3	5.6	9.6	6.5	5.3	16.9
6	110	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.1	5.4	9.2	6.2	5.2	16.3
7	110	3.9	5.2	6.5	5.3	4.1	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.5
8	110	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.7	6.2	4.8	8.1	5.5	4.5	14.3
6	125	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
7	125	3.2	4.2	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.2	7.2	4.9	4.0	12.7
8	125	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **2312** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.6	7.4	9.3	7.6	5.9	6.7	6.7	8.5	8.9	9.6	7.4	12.6	8.5	7.0	22.2
7	90	5.3	7.1	8.9	7.3	5.7	6.4	6.4	8.2	8.5	9.2	7.1	12.1	8.2	6.7	21.3
8	90	4.9	6.5	8.2	6.7	5.2	5.9	5.9	7.5	7.8	8.5	6.5	11.1	7.5	6.2	19.6
6	100	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.3	6.4	10.9	7.4	6.1	19.2
7	100	4.6	6.1	7.6	6.3	4.9	5.5	5.5	7.0	7.3	7.9	6.1	10.4	7.0	5.8	18.3
8	100	4.2	5.6	7.0	5.8	4.5	5.1	5.1	6.5	6.7	7.3	5.6	9.6	6.5	5.3	16.9
6	110	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.1	5.4	9.2	6.2	5.2	16.3
7	110	3.9	5.2	6.5	5.3	4.1	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.5
8	110	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.7	6.2	4.8	8.1	5.5	4.5	14.3
6	125	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
7	125	3.2	4.2	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.2	7.2	4.9	4.0	12.7
8	125	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7

Tight Rust or Millscale

New Steel **Medium Profile Range** **SSPC-SP 5** **Tables** **2312** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	11.1	14.8	18.5	15.3	11.9	13.3	13.3	17.0	17.8	19.3	14.8	25.2	17.0	14.1	44.5
7	90	10.6	14.2	17.7	14.6	11.4	12.8	12.8	16.3	17.0	18.5	14.2	24.1	16.3	13.5	42.6
8	90	9.8	13.1	16.3	13.5	10.5	11.8	11.8	15.0	15.7	17.0	13.1	22.2	15.0	12.4	39.2
6	100	9.6	12.8	16.0	13.2	10.2	11.5	11.5	14.7	15.4	16.6	12.8	21.8	14.7	12.2	38.4
7	100	9.1	12.2	15.2	12.6	9.7	11.0	11.0	14.0	14.6	15.8	12.2	20.7	14.0	11.6	36.6
8	100	8.4	11.2	14.1	11.6	9.0	10.1	10.1	12.9	13.5	14.6	11.2	19.1	12.9	10.7	33.7
6	110	8.1	10.8	13.6	11.2	8.7	9.8	9.8	12.5	13.0	14.1	10.8	18.4	12.5	10.3	32.5
7	110	7.8	10.4	12.9	10.7	8.3	9.3	9.3	11.9	12.4	13.5	10.4	17.6	11.9	9.8	31.1
8	110	7.2	9.6	12.0	9.9	7.7	8.6	8.6	11.0	11.5	12.4	9.6	16.3	11.0	9.1	28.7
6	125	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.1	10.6	11.5	8.8	15.0	10.1	8.4	26.4
7	125	6.4	8.5	10.6	8.7	6.8	7.6	7.6	9.7	10.2	11.0	8.5	14.4	9.7	8.0	25.4
8	125	5.8	7.8	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.1	7.8	13.2	8.9	7.4	23.3

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 5** | **Tables** **2313** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	11.1	14.8	18.5	15.3	11.9	13.3	13.3	17.0	17.8	19.3	14.8	25.2	17.0	14.1	44.5
7	90	10.6	14.2	17.7	14.6	11.4	12.8	12.8	16.3	17.0	18.5	14.2	24.1	16.3	13.5	42.6
8	90	9.8	13.1	16.3	13.5	10.5	11.8	11.8	15.0	15.7	17.0	13.1	22.2	15.0	12.4	39.2
6	100	9.6	12.8	16.0	13.2	10.2	11.5	11.5	14.7	15.4	16.6	12.8	21.8	14.7	12.2	38.4
7	100	9.1	12.2	15.2	12.6	9.7	11.0	11.0	14.0	14.6	15.8	12.2	20.7	14.0	11.6	36.6
8	100	8.4	11.2	14.1	11.6	9.0	10.1	10.1	12.9	13.5	14.6	11.2	19.1	12.9	10.7	33.7
6	110	8.1	10.8	13.6	11.2	8.7	9.8	9.8	12.5	13.0	14.1	10.8	18.4	12.5	10.3	32.5
7	110	7.8	10.4	12.9	10.7	8.3	9.3	9.3	11.9	12.4	13.5	10.4	17.6	11.9	9.8	31.1
8	110	7.2	9.6	12.0	9.9	7.7	8.6	8.6	11.0	11.5	12.4	9.6	16.3	11.0	9.1	28.7
6	125	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.1	10.6	11.5	8.8	15.0	10.1	8.4	26.4
7	125	6.4	8.5	10.6	8.7	6.8	7.6	7.6	9.7	10.2	11.0	8.5	14.4	9.7	8.0	25.4
8	125	5.8	7.8	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.1	7.8	13.2	8.9	7.4	23.3

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 5** | **Tables** **2313** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.3	4.4	5.5	4.5	3.5	3.9	3.9	5.0	5.3	5.7	4.4	7.5	5.0	4.2	13.2
8	90	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	12.1
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.8	3.8	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.8	6.4	4.3	3.6	11.3
8	100	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
7	110	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.6
8	110	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
8	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2321** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.3	4.4	5.5	4.5	3.5	3.9	3.9	5.0	5.3	5.7	4.4	7.5	5.0	4.2	13.2
8	90	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	12.1
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.8	3.8	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.8	6.4	4.3	3.6	11.3
8	100	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
7	110	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.6
8	110	2.2	2.9	3.7	3.0	2.4	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
8	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2321** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0
7	90	4.9	6.6	8.2	6.8	5.3	5.9	5.9	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.7
8	90	4.5	6.0	7.6	6.2	4.8	5.4	5.4	7.0	7.3	7.9	6.0	10.3	7.0	5.7	18.1
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3
7	100	4.2	5.7	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.4	5.7	9.6	6.5	5.4	17.0
8	100	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6
7	110	3.6	4.8	6.0	5.0	3.9	4.3	4.3	5.5	5.8	6.3	4.8	8.2	5.5	4.6	14.4
8	110	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.7	4.6	3.8	11.9
7	125	2.9	3.9	4.9	4.1	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
8	125	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2322 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0			
7	90	4.9	6.6	8.2	6.8	5.3	5.9	5.9	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.7			
8	90	4.5	6.0	7.6	6.2	4.8	5.4	5.4	7.0	7.3	7.9	6.0	10.3	7.0	5.7	18.1			
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3			
7	100	4.2	5.7	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.4	5.7	9.6	6.5	5.4	17.0			
8	100	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6			
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6			
7	110	3.6	4.8	6.0	5.0	3.9	4.3	4.3	5.5	5.8	6.3	4.8	8.2	5.5	4.6	14.4			
8	110	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2			
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.7	4.6	3.8	11.9			
7	125	2.9	3.9	4.9	4.1	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8			
8	125	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8			

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2322 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	10.0	13.3	16.6	13.7	10.7	12.0	12.0	15.3	16.0	17.3	13.3	22.6	15.3	12.7	39.9
7	90	9.9	13.2	16.5	13.6	10.5	11.8	11.8	15.1	15.8	17.1	13.2	22.4	15.1	12.5	39.5
8	90	9.0	12.1	15.1	12.4	9.6	10.8	10.8	13.9	14.5	15.7	12.1	20.5	13.9	11.4	36.2
6	100	8.6	11.5	14.4	11.9	9.2	10.4	10.4	13.2	13.8	15.0	11.5	19.6	13.2	10.9	34.6
7	100	8.5	11.3	14.1	11.7	9.1	10.2	10.2	13.0	13.6	14.7	11.3	19.2	13.0	10.7	33.9
8	100	7.8	10.4	13.0	10.7	8.3	9.3	9.3	11.9	12.5	13.5	10.4	17.6	11.9	9.9	31.1
6	110	7.3	9.7	12.2	10.0	7.8	8.8	8.8	11.2	11.7	12.6	9.7	16.5	11.2	9.2	29.2
7	110	7.2	9.7	12.1	9.9	7.7	8.7	8.7	11.1	11.6	12.5	9.7	16.4	11.1	9.2	29.0
8	110	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.2	10.6	11.5	8.8	15.0	10.2	8.4	26.5
6	125	5.9	7.9	9.9	8.2	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.5	9.1	7.5	23.7
7	125	5.9	7.8	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.8	13.3	9.0	7.5	23.5
8	125	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.6	9.3	7.2	12.2	8.3	6.8	21.6

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10** | **Tables** **2323** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	10.0	13.3	16.6	13.7	10.7	12.0	12.0	15.3	16.0	17.3	13.3	22.6	15.3	12.7	39.9	
7	90	9.9	13.2	16.5	13.6	10.5	11.8	11.8	15.1	15.8	17.1	13.2	22.4	15.1	12.5	39.5	
8	90	9.0	12.1	15.1	12.4	9.6	10.8	10.8	13.9	14.5	15.7	12.1	20.5	13.9	11.4	36.2	
6	100	8.6	11.5	14.4	11.9	9.2	10.4	10.4	13.2	13.8	15.0	11.5	19.6	13.2	10.9	34.6	
7	100	8.5	11.3	14.1	11.7	9.1	10.2	10.2	13.0	13.6	14.7	11.3	19.2	13.0	10.7	33.9	
8	100	7.8	10.4	13.0	10.7	8.3	9.3	9.3	11.9	12.5	13.5	10.4	17.6	11.9	9.9	31.1	
6	110	7.3	9.7	12.2	10.0	7.8	8.8	8.8	11.2	11.7	12.6	9.7	16.5	11.2	9.2	29.2	
7	110	7.2	9.7	12.1	9.9	7.7	8.7	8.7	11.1	11.6	12.5	9.7	16.4	11.1	9.2	29.0	
8	110	6.6	8.8	11.0	9.1	7.1	7.9	7.9	10.2	10.6	11.5	8.8	15.0	10.2	8.4	26.5	
6	125	5.9	7.9	9.9	8.2	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.5	9.1	7.5	23.7	
7	125	5.9	7.8	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.8	13.3	9.0	7.5	23.5	
8	125	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.6	9.3	7.2	12.2	8.3	6.8	21.6	

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10** | **Tables** **2323** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
7	90	1.5	2.0	2.6	2.1	1.6	1.8	1.8	2.3	2.5	2.7	2.0	3.5	2.3	1.9	6.1
8	90	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
6	100	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.3	2.2	1.8	5.8
7	100	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
8	100	1.3	1.7	2.1	1.7	1.3	1.5	1.5	1.9	2.0	2.2	1.7	2.9	1.9	1.6	5.1
6	110	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	1.9	2.1	1.6	2.8	1.9	1.5	4.9
7	110	1.1	1.5	1.9	1.5	1.2	1.4	1.4	1.7	1.8	2.0	1.5	2.6	1.7	1.4	4.5
8	110	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.9	1.4	2.4	1.6	1.4	4.3
6	125	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	125	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	125	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables** 2331 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
7	90	1.5	2.0	2.6	2.1	1.6	1.8	1.8	2.3	2.5	2.7	2.0	3.5	2.3	1.9	6.1
8	90	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.3	2.3	1.9	5.9
6	100	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.3	2.2	1.8	5.8
7	100	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
8	100	1.3	1.7	2.1	1.7	1.3	1.5	1.5	1.9	2.0	2.2	1.7	2.9	1.9	1.6	5.1
6	110	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	1.9	2.1	1.6	2.8	1.9	1.5	4.9
7	110	1.1	1.5	1.9	1.5	1.2	1.4	1.4	1.7	1.8	2.0	1.5	2.6	1.7	1.4	4.5
8	110	1.1	1.4	1.8	1.5	1.1	1.3	1.3	1.6	1.7	1.9	1.4	2.4	1.6	1.4	4.3
6	125	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	125	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	125	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables 2331 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.5	3.3	4.2	3.4	2.7	3.0	3.0	3.8	4.0	4.3	3.3	5.7	3.8	3.2	10.0
7	90	2.3	3.1	3.8	3.2	2.4	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2
8	90	2.2	2.9	3.7	3.0	2.4	2.7	2.7	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	100	2.2	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.5	3.7	2.9	4.9	3.3	2.7	8.6
7	100	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
8	100	1.9	2.5	3.2	2.6	2.0	2.3	2.3	2.9	3.0	3.3	2.5	4.3	2.9	2.4	7.6
6	110	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.2	2.4	4.1	2.8	2.3	7.3
7	110	1.7	2.3	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.3	3.8	2.6	2.1	6.8
8	110	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.1	3.7	2.5	2.0	6.4
6	125	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
7	125	1.4	1.8	2.3	1.9	1.5	1.7	1.7	2.1	2.2	2.4	1.8	3.1	2.1	1.7	5.5
8	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **2332** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.5	3.3	4.2	3.4	2.7	3.0	3.0	3.8	4.0	4.3	3.3	5.7	3.8	3.2	10.0
7	90	2.3	3.1	3.8	3.2	2.4	2.8	2.8	3.5	3.7	4.0	3.1	5.2	3.5	2.9	9.2
8	90	2.2	2.9	3.7	3.0	2.4	2.7	2.7	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	100	2.2	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.5	3.7	2.9	4.9	3.3	2.7	8.6
7	100	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
8	100	1.9	2.5	3.2	2.6	2.0	2.3	2.3	2.9	3.0	3.3	2.5	4.3	2.9	2.4	7.6
6	110	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.2	2.4	4.1	2.8	2.3	7.3
7	110	1.7	2.3	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.3	3.8	2.6	2.1	6.8
8	110	1.6	2.1	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.1	3.7	2.5	2.0	6.4
6	125	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
7	125	1.4	1.8	2.3	1.9	1.5	1.7	1.7	2.1	2.2	2.4	1.8	3.1	2.1	1.7	5.5
8	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** 2332 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0
7	90	4.6	6.1	7.7	6.3	4.9	5.5	5.5	7.1	7.4	8.0	6.1	10.4	7.1	5.8	18.4
8	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3
7	100	4.0	5.3	6.6	5.4	4.2	4.8	4.8	6.1	6.3	6.9	5.3	9.0	6.1	5.0	15.8
8	100	3.8	5.1	6.3	5.2	4.0	4.6	4.6	5.8	6.1	6.6	5.1	8.6	5.8	4.8	15.2
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6
7	110	3.4	4.5	5.6	4.6	3.6	4.1	4.1	5.2	5.4	5.9	4.5	7.7	5.2	4.3	13.5
8	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.2	5.6	4.3	7.3	4.9	4.1	12.9
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	11.9
7	125	2.8	3.7	4.6	3.8	2.9	3.3	3.3	4.2	4.4	4.8	3.7	6.2	4.2	3.5	11.0
8	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.5

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** **2333** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0			
7	90	4.6	6.1	7.7	6.3	4.9	5.5	5.5	7.1	7.4	8.0	6.1	10.4	7.1	5.8	18.4			
8	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7			
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3			
7	100	4.0	5.3	6.6	5.4	4.2	4.8	4.8	6.1	6.3	6.9	5.3	9.0	6.1	5.0	15.8			
8	100	3.8	5.1	6.3	5.2	4.0	4.6	4.6	5.8	6.1	6.6	5.1	8.6	5.8	4.8	15.2			
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6			
7	110	3.4	4.5	5.6	4.6	3.6	4.1	4.1	5.2	5.4	5.9	4.5	7.7	5.2	4.3	13.5			
8	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.2	5.6	4.3	7.3	4.9	4.1	12.9			
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	11.9			
7	125	2.8	3.7	4.6	3.8	2.9	3.3	3.3	4.2	4.4	4.8	3.7	6.2	4.2	3.5	11.0			
8	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.5			

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** **2333** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** 2341 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** 2341 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.1	6.8	8.5	7.0	5.5	6.1	6.1	7.9	8.2	8.9	6.8	11.6	7.9	6.5	20.5
7	90	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.4	6.4	10.9	7.4	6.1	19.3
8	90	4.5	6.0	7.6	6.2	4.8	5.4	5.4	7.0	7.3	7.9	6.0	10.3	7.0	5.7	18.1
6	100	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	100	4.2	5.6	6.9	5.7	4.4	5.0	5.0	6.4	6.7	7.2	5.6	9.4	6.4	5.3	16.7
8	100	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6
6	110	3.8	5.0	6.3	5.2	4.0	4.5	4.5	5.8	6.0	6.5	5.0	8.5	5.8	4.8	15.0
7	110	3.5	4.7	5.9	4.9	3.8	4.3	4.3	5.4	5.7	6.2	4.7	8.0	5.4	4.5	14.2
8	110	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
6	125	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2
7	125	2.9	3.9	4.8	4.0	3.1	3.5	3.5	4.5	4.6	5.0	3.9	6.6	4.5	3.7	11.6
8	125	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **3111** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	7.7	10.2	12.8	10.5	8.2	9.2	9.2	11.7	12.3	13.3	10.2	17.4	11.7	9.7	30.6
7	90	7.2	9.7	12.1	9.9	7.7	8.7	8.7	11.1	11.6	12.5	9.7	16.4	11.1	9.2	29.0
8	90	6.8	9.1	11.4	9.4	7.3	8.2	8.2	10.5	10.9	11.8	9.1	15.5	10.5	8.6	27.3
6	100	6.6	8.9	11.1	9.1	7.1	8.0	8.0	10.2	10.6	11.5	8.9	15.1	10.2	8.4	26.6
7	100	6.3	8.3	10.4	8.6	6.7	7.5	7.5	9.6	10.0	10.8	8.3	14.2	9.6	7.9	25.0
8	100	5.8	7.8	9.7	8.0	6.2	7.0	7.0	9.0	9.3	10.1	7.8	13.2	9.0	7.4	23.4
6	110	5.6	7.5	9.4	7.7	6.0	6.8	6.8	8.6	9.0	9.8	7.5	12.8	8.6	7.1	22.6
7	110	5.3	7.1	8.9	7.3	5.7	6.4	6.4	8.2	8.5	9.2	7.1	12.1	8.2	6.8	21.3
8	110	4.9	6.6	8.2	6.8	5.3	5.9	5.9	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.8
6	125	4.6	6.1	7.6	6.3	4.9	5.5	5.5	7.0	7.3	7.9	6.1	10.4	7.0	5.8	18.3
7	125	4.3	5.8	7.2	6.0	4.6	5.2	5.2	6.7	7.0	7.5	5.8	9.9	6.7	5.5	17.4
8	125	4.0	5.4	6.7	5.6	4.3	4.9	4.9	6.2	6.5	7.0	5.4	9.2	6.2	5.1	16.2

Thin Paint or Rusted Thin Paint

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **3112** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	15.5	20.6	25.8	21.2	16.5	18.6	18.6	23.7	24.8	26.8	20.6	35.1	23.7	19.6	61.9
7	90	14.5	19.3	24.1	19.9	15.4	17.4	17.4	22.2	23.2	25.1	19.3	32.8	22.2	18.3	57.9
8	90	13.6	18.2	22.7	18.7	14.6	16.4	16.4	20.9	21.8	23.7	18.2	30.9	20.9	17.3	54.6
6	100	13.3	17.7	22.2	18.3	14.2	16.0	16.0	20.4	21.3	23.0	17.7	30.1	20.4	16.8	53.2
7	100	12.5	16.7	20.8	17.2	13.3	15.0	15.0	19.2	20.0	21.7	16.7	28.3	19.2	15.8	50.0
8	100	11.7	15.6	19.5	16.0	12.5	14.0	14.0	17.9	18.7	20.2	15.6	26.5	17.9	14.8	46.7
6	110	11.2	15.0	18.7	15.4	12.0	13.5	13.5	17.2	17.9	19.4	15.0	25.4	17.2	14.2	44.9
7	110	10.6	14.2	17.7	14.6	11.3	12.7	12.7	16.3	17.0	18.4	14.2	24.1	16.3	13.5	42.5
8	110	9.9	13.2	16.5	13.6	10.6	11.9	11.9	15.2	15.8	17.2	13.2	22.4	15.2	12.5	39.6
6	125	9.2	12.2	15.3	12.6	9.8	11.0	11.0	14.1	14.7	15.9	12.2	20.8	14.1	11.6	36.7
7	125	8.7	11.6	14.5	12.0	9.3	10.5	10.5	13.4	14.0	15.1	11.6	19.8	13.4	11.1	34.9
8	125	8.1	10.8	13.5	11.1	8.6	9.7	9.7	12.4	12.9	14.0	10.8	18.3	12.4	10.2	32.4

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **3113** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	90	4.4	5.8	7.3	6.0	4.7	5.3	5.3	6.7	7.0	7.6	5.8	9.9	6.7	5.5	17.5
8	90	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.1	5.4	9.2	6.2	5.2	16.3
6	100	3.8	5.1	6.4	5.3	4.1	4.6	4.6	5.9	6.1	6.7	5.1	8.7	5.9	4.9	15.4
7	100	3.8	5.0	6.3	5.2	4.0	4.5	4.5	5.8	6.0	6.5	5.0	8.5	5.8	4.8	15.1
8	100	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.0	4.7	7.9	5.4	4.4	14.0
6	110	3.2	4.3	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.6	4.3	7.4	5.0	4.1	13.0
7	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.1	5.6	4.3	7.3	4.9	4.1	12.9
8	110	3.0	3.9	4.9	4.1	3.2	3.6	3.6	4.5	4.7	5.1	3.9	6.7	4.5	3.8	11.8
6	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.1	4.2	4.6	3.5	6.0	4.1	3.4	10.6
7	125	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5
8	125	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.7

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **3121** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																		
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.7	8.9	11.1	9.2	7.1	8.0	8.0	10.3	10.7	11.6	8.9	15.2	10.3	8.5	26.7
7	90	6.6	8.8	11.0	9.0	7.0	7.9	7.9	10.1	10.5	11.4	8.8	14.9	10.1	8.3	26.3
8	90	6.1	8.1	10.2	8.4	6.5	7.3	7.3	9.4	9.8	10.6	8.1	13.8	9.4	7.7	24.4
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0
7	100	5.7	7.5	9.4	7.8	6.0	6.8	6.8	8.7	9.1	9.8	7.5	12.8	8.7	7.2	22.6
8	100	5.2	7.0	8.7	7.2	5.6	6.3	6.3	8.0	8.4	9.1	7.0	11.9	8.0	6.6	20.9
6	110	4.9	6.5	8.2	6.7	5.2	5.9	5.9	7.5	7.8	8.5	6.5	11.1	7.5	6.2	19.6
7	110	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.4	6.4	10.9	7.4	6.1	19.3
8	110	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.1	6.8	5.6	17.8
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9
7	125	3.9	5.2	6.6	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7
8	125	3.6	4.8	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.8	8.2	5.6	4.6	14.5

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **3122** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	13.4	17.8	22.3	18.4	14.3	16.0	16.0	20.5	21.4	23.2	17.8	30.3	20.5	16.9	53.5
7	90	13.1	17.4	21.8	18.0	14.0	15.7	15.7	20.1	20.9	22.7	17.4	29.7	20.1	16.6	52.3
8	90	12.2	16.3	20.4	16.8	13.0	14.7	14.7	18.7	19.5	21.2	16.3	27.7	18.7	15.5	48.8
6	100	11.5	15.4	19.2	15.8	12.3	13.8	13.8	17.7	18.4	20.0	15.4	26.1	17.7	14.6	46.1
7	100	11.3	15.1	18.9	15.5	12.1	13.6	13.6	17.3	18.1	19.6	15.1	25.6	17.3	14.3	45.3
8	100	10.5	14.0	17.4	14.4	11.2	12.6	12.6	16.1	16.8	18.1	14.0	23.7	16.1	13.3	41.9
6	110	9.8	13.0	16.3	13.4	10.4	11.7	11.7	15.0	15.7	17.0	13.0	22.2	15.0	12.4	39.1
7	110	9.7	12.9	16.1	13.3	10.3	11.6	11.6	14.8	15.4	16.7	12.9	21.9	14.8	12.2	38.6
8	110	8.9	11.8	14.8	12.2	9.5	10.6	10.6	13.6	14.2	15.4	11.8	20.1	13.6	11.2	35.5
6	125	7.9	10.6	13.2	10.9	8.4	9.5	9.5	12.1	12.7	13.7	10.6	17.9	12.1	10.0	31.7
7	125	7.9	10.5	13.1	10.8	8.4	9.4	9.4	12.1	12.6	13.6	10.5	17.8	12.1	10.0	31.5
8	125	7.3	9.7	12.1	10.0	7.7	8.7	8.7	11.1	11.6	12.6	9.7	16.5	11.1	9.2	29.0

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **3123** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	8.9
7	90	2.0	2.7	3.4	2.8	2.2	2.5	2.5	3.1	3.3	3.5	2.7	4.6	3.1	2.6	8.2
8	90	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
6	100	1.9	2.6	3.2	2.6	2.0	2.3	2.3	2.9	3.1	3.3	2.6	4.4	2.9	2.4	7.7
7	100	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.1	2.3	4.0	2.7	2.2	7.0
8	100	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
6	110	1.6	2.2	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.2	3.7	2.5	2.1	6.5
7	110	1.5	2.0	2.5	2.1	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
8	110	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.2	2.2	1.8	5.7
6	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
7	125	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	2.0	2.1	1.6	2.8	1.9	1.6	4.9
8	125	1.2	1.6	1.9	1.6	1.2	1.4	1.4	1.8	1.9	2.0	1.6	2.6	1.8	1.5	4.7

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **3131** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
7	90	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	7.0	4.7	3.9	12.3
8	90	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
7	100	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.6
8	100	2.5	3.4	4.2	3.5	2.7	3.0	3.0	3.9	4.0	4.4	3.4	5.7	3.9	3.2	10.1
6	110	2.4	3.2	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.7
7	110	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	9.0
8	110	2.1	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.4	3.7	2.9	4.9	3.3	2.7	8.6
6	125	2.0	2.7	3.3	2.7	2.1	2.4	2.4	3.1	3.2	3.4	2.7	4.5	3.1	2.5	8.0
7	125	1.8	2.4	3.1	2.5	2.0	2.2	2.2	2.8	2.9	3.2	2.4	4.2	2.8	2.3	7.3
8	125	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **3132** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.7	8.9	11.1	9.2	7.1	8.0	8.0	10.3	10.7	11.6	8.9	15.2	10.3	8.5	26.7
7	90	6.1	8.2	10.2	8.4	6.5	7.4	7.4	9.4	9.8	10.6	8.2	13.9	9.4	7.8	24.5
8	90	5.9	7.9	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.9	13.4	9.0	7.5	23.6
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0
7	100	5.3	7.0	8.8	7.3	5.6	6.3	6.3	8.1	8.4	9.2	7.0	12.0	8.1	6.7	21.1
8	100	5.1	6.7	8.4	6.9	5.4	6.1	6.1	7.8	8.1	8.8	6.7	11.5	7.8	6.4	20.2
6	110	4.9	6.5	8.1	6.7	5.2	5.8	5.8	7.5	7.8	8.4	6.5	11.0	7.5	6.2	19.5
7	110	4.5	6.0	7.5	6.2	4.8	5.4	5.4	6.9	7.2	7.8	6.0	10.2	6.9	5.7	18.0
8	110	4.3	5.7	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.7	9.8	6.6	5.5	17.2
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9
7	125	3.7	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.9	6.4	4.9	8.3	5.6	4.7	14.7
8	125	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.1	4.7	7.9	5.4	4.4	14.0

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **3133** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Thin Paint or Rusted Thin Paint

Hard Coating **Low Profile Range** **SSPC-SP 7** **Tables** **3141** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.4	4.6	5.7	4.7	3.6	4.1	4.1	5.2	5.5	5.9	4.6	7.7	5.2	4.3	13.7
7	90	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.2	5.6	4.3	7.3	4.9	4.1	12.9
8	90	3.0	4.0	5.0	4.2	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.9	4.6	3.8	12.1
6	100	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
7	100	2.8	3.7	4.6	3.8	3.0	3.3	3.3	4.3	4.4	4.8	3.7	6.3	4.3	3.5	11.1
8	100	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4
6	110	2.5	3.3	4.2	3.4	2.7	3.0	3.0	3.8	4.0	4.3	3.3	5.7	3.8	3.2	10.0
7	110	2.4	3.2	3.9	3.3	2.5	2.8	2.8	3.6	3.8	4.1	3.2	5.4	3.6	3.0	9.5
8	110	2.2	2.9	3.7	3.0	2.3	2.6	2.6	3.4	3.5	3.8	2.9	5.0	3.4	2.8	8.8
6	125	2.0	2.7	3.4	2.8	2.2	2.4	2.4	3.1	3.3	3.5	2.7	4.6	3.1	2.6	8.1
7	125	1.9	2.6	3.2	2.7	2.1	2.3	2.3	3.0	3.1	3.4	2.6	4.4	3.0	2.4	7.7
8	125	1.8	2.4	3.0	2.5	1.9	2.2	2.2	2.8	2.9	3.1	2.4	4.1	2.8	2.3	7.2

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **3211** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.1	6.8	8.5	7.0	5.5	6.1	6.1	7.9	8.2	8.9	6.8	11.6	7.9	6.5	20.5
7	90	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.4	6.4	10.9	7.4	6.1	19.3
8	90	4.5	6.0	7.6	6.2	4.8	5.4	5.4	7.0	7.3	7.9	6.0	10.3	7.0	5.7	18.1
6	100	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	100	4.2	5.6	6.9	5.7	4.4	5.0	5.0	6.4	6.7	7.2	5.6	9.4	6.4	5.3	16.7
8	100	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6
6	110	3.8	5.0	6.3	5.2	4.0	4.5	4.5	5.8	6.0	6.5	5.0	8.5	5.8	4.8	15.0
7	110	3.5	4.7	5.9	4.9	3.8	4.3	4.3	5.4	5.7	6.2	4.7	8.0	5.4	4.5	14.2
8	110	3.3	4.4	5.5	4.5	3.5	4.0	4.0	5.1	5.3	5.7	4.4	7.5	5.1	4.2	13.2
6	125	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	6.9	4.7	3.9	12.2
7	125	2.9	3.9	4.8	4.0	3.1	3.5	3.5	4.5	4.6	5.0	3.9	6.6	4.5	3.7	11.6
8	125	2.7	3.6	4.5	3.7	2.9	3.2	3.2	4.1	4.3	4.7	3.6	6.1	4.1	3.4	10.8

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **3212** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	10.2	13.7	17.1	14.1	10.9	12.3	12.3	15.7	16.4	17.8	13.7	23.2	15.7	13.0	41.0
7	90	9.7	12.9	16.2	13.3	10.3	11.6	11.6	14.9	15.5	16.8	12.9	22.0	14.9	12.3	38.8
8	90	9.1	12.1	15.2	12.5	9.7	10.9	10.9	14.0	14.6	15.8	12.1	20.6	14.0	11.5	36.4
6	100	8.8	11.8	14.7	12.1	9.4	10.6	10.6	13.5	14.1	15.3	11.8	20.0	13.5	11.2	35.3
7	100	8.3	11.1	13.8	11.4	8.9	10.0	10.0	12.7	13.3	14.4	11.1	18.8	12.7	10.5	33.2
8	100	7.8	10.4	13.0	10.7	8.3	9.3	9.3	11.9	12.5	13.5	10.4	17.6	11.9	9.9	31.1
6	110	7.5	10.0	12.6	10.4	8.0	9.0	9.0	11.6	12.1	13.1	10.0	17.1	11.6	9.5	30.1
7	110	7.1	9.5	11.9	9.8	7.6	8.5	8.5	10.9	11.4	12.3	9.5	16.1	10.9	9.0	28.5
8	110	6.6	8.8	11.0	9.1	7.0	7.9	7.9	10.1	10.6	11.4	8.8	15.0	10.1	8.4	26.4
6	125	6.1	8.1	10.2	8.4	6.5	7.3	7.3	9.4	9.8	10.6	8.1	13.8	9.4	7.7	24.4
7	125	5.8	7.7	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.0	7.7	13.1	8.9	7.3	23.2
8	125	5.4	7.2	9.0	7.4	5.8	6.5	6.5	8.3	8.6	9.3	7.2	12.2	8.3	6.8	21.6

Thin Paint or Rusted Thin Paint

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **3213** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.0	4.0	4.9	4.1	3.2	3.6	3.6	4.5	4.7	5.1	4.0	6.7	4.5	3.8	11.9
7	90	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.6	4.5	3.7	11.7
8	90	2.7	3.6	4.5	3.7	2.9	3.3	3.3	4.2	4.3	4.7	3.6	6.2	4.2	3.4	10.9
6	100	2.6	3.4	4.3	3.5	2.7	3.1	3.1	3.9	4.1	4.4	3.4	5.8	3.9	3.2	10.2
7	100	2.5	3.3	4.2	3.4	2.7	3.0	3.0	3.9	4.0	4.4	3.3	5.7	3.9	3.2	10.0
8	100	2.3	3.1	3.9	3.2	2.5	2.8	2.8	3.6	3.7	4.0	3.1	5.3	3.6	2.9	9.3
6	110	2.2	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.5	3.8	2.9	4.9	3.3	2.7	8.7
7	110	2.1	2.9	3.6	2.9	2.3	2.6	2.6	3.3	3.4	3.7	2.9	4.9	3.3	2.7	8.6
8	110	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
6	125	1.8	2.4	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.1	2.4	4.0	2.7	2.2	7.1
7	125	1.7	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0
8	125	1.6	2.2	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.2	3.7	2.5	2.0	6.5

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables 3221 CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	90	4.4	5.8	7.3	6.0	4.7	5.3	5.3	6.7	7.0	7.6	5.8	9.9	6.7	5.5	17.5
8	90	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.1	5.4	9.2	6.2	5.2	16.3
6	100	3.8	5.1	6.4	5.3	4.1	4.6	4.6	5.9	6.1	6.7	5.1	8.7	5.9	4.9	15.4
7	100	3.8	5.0	6.3	5.2	4.0	4.5	4.5	5.8	6.0	6.5	5.0	8.5	5.8	4.8	15.1
8	100	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.0	4.7	7.9	5.4	4.4	14.0
6	110	3.2	4.3	5.4	4.5	3.5	3.9	3.9	5.0	5.2	5.6	4.3	7.4	5.0	4.1	13.0
7	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.1	5.6	4.3	7.3	4.9	4.1	12.9
8	110	3.0	3.9	4.9	4.1	3.2	3.6	3.6	4.5	4.7	5.1	3.9	6.7	4.5	3.8	11.8
6	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.1	4.2	4.6	3.5	6.0	4.1	3.4	10.6
7	125	2.6	3.5	4.4	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.5
8	125	2.4	3.2	4.0	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.2	5.5	3.7	3.1	9.7

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 3222 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	8.9	11.8	14.8	12.2	9.5	10.6	10.6	13.6	14.2	15.4	11.8	20.1	13.6	11.2	35.5			
7	90	8.8	11.7	14.6	12.0	9.3	10.5	10.5	13.4	14.0	15.2	11.7	19.9	13.4	11.1	35.0			
8	90	8.1	10.9	13.6	11.2	8.7	9.8	9.8	12.5	13.0	14.1	10.9	18.5	12.5	10.3	32.6			
6	100	7.6	10.2	12.7	10.5	8.2	9.2	9.2	11.7	12.2	13.3	10.2	17.3	11.7	9.7	30.6			
7	100	7.5	10.0	12.5	10.3	8.0	9.0	9.0	11.5	12.0	13.0	10.0	17.0	11.5	9.5	30.1			
8	100	7.0	9.3	11.6	9.6	7.4	8.4	8.4	10.7	11.1	12.1	9.3	15.8	10.7	8.8	27.9			
6	110	6.5	8.7	10.9	9.0	7.0	7.8	7.8	10.0	10.4	11.3	8.7	14.8	10.0	8.3	26.1			
7	110	6.4	8.6	10.7	8.8	6.9	7.7	7.7	9.9	10.3	11.2	8.6	14.6	9.9	8.2	25.7			
8	110	5.9	7.9	9.9	8.1	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.4	9.1	7.5	23.7			
6	125	5.3	7.1	8.8	7.3	5.7	6.4	6.4	8.1	8.5	9.2	7.1	12.0	8.1	6.7	21.2			
7	125	5.2	7.0	8.7	7.2	5.6	6.3	6.3	8.0	8.4	9.1	7.0	11.9	8.0	6.6	21.0			
8	125	4.8	6.5	8.1	6.6	5.2	5.8	5.8	7.4	7.7	8.4	6.5	11.0	7.4	6.1	19.4			

Thin Paint or Rusted Thin Paint

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** 3223 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured					
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.5	2.0	2.5	2.0	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	5.9
7	90	1.4	1.8	2.3	1.9	1.5	1.6	1.6	2.1	2.2	2.4	1.8	3.1	2.1	1.7	5.5
8	90	1.3	1.7	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.7	3.0	2.0	1.7	5.2
6	100	1.3	1.7	2.1	1.8	1.4	1.5	1.5	2.0	2.0	2.2	1.7	2.9	2.0	1.6	5.1
7	100	1.2	1.6	2.0	1.6	1.3	1.4	1.4	1.8	1.9	2.0	1.6	2.7	1.8	1.5	4.7
8	100	1.1	1.5	1.9	1.5	1.2	1.3	1.3	1.7	1.8	1.9	1.5	2.5	1.7	1.4	4.5
6	110	1.1	1.4	1.8	1.5	1.2	1.3	1.3	1.7	1.7	1.9	1.4	2.4	1.7	1.4	4.3
7	110	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
8	110	1.0	1.3	1.6	1.3	1.0	1.1	1.1	1.5	1.5	1.7	1.3	2.2	1.5	1.2	3.8
6	125	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
7	125	0.8	1.1	1.4	1.1	0.9	1.0	1.0	1.3	1.3	1.4	1.1	1.9	1.3	1.0	3.3
8	125	0.8	1.0	1.3	1.1	0.8	0.9	0.9	1.2	1.2	1.4	1.0	1.8	1.2	1.0	3.1

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables 3231 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	8.9
7	90	2.0	2.7	3.4	2.8	2.2	2.5	2.5	3.1	3.3	3.5	2.7	4.6	3.1	2.6	8.2
8	90	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
6	100	1.9	2.6	3.2	2.6	2.0	2.3	2.3	2.9	3.1	3.3	2.6	4.4	2.9	2.4	7.7
7	100	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.1	2.3	4.0	2.7	2.2	7.0
8	100	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
6	110	1.6	2.2	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.2	3.7	2.5	2.1	6.5
7	110	1.5	2.0	2.5	2.1	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
8	110	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.2	2.2	1.8	5.7
6	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
7	125	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	2.0	2.1	1.6	2.8	1.9	1.6	4.9
8	125	1.2	1.6	1.9	1.6	1.2	1.4	1.4	1.8	1.9	2.0	1.6	2.6	1.8	1.5	4.7

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** 3232 **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting																	
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**						
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	4.5	5.9	7.4	6.1	4.8	5.3	5.3	6.8	7.1	7.7	5.9	10.1	6.8	5.6	17.8			
7	90	4.1	5.4	6.8	5.6	4.4	4.9	4.9	6.3	6.5	7.1	5.4	9.3	6.3	5.2	16.3			
8	90	3.9	5.2	6.6	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7			
6	100	3.8	5.1	6.4	5.3	4.1	4.6	4.6	5.9	6.1	6.7	5.1	8.7	5.9	4.9	15.4			
7	100	3.5	4.7	5.9	4.8	3.7	4.2	4.2	5.4	5.6	6.1	4.7	8.0	5.4	4.5	14.1			
8	100	3.4	4.5	5.6	4.6	3.6	4.0	4.0	5.2	5.4	5.8	4.5	7.6	5.2	4.3	13.5			
6	110	3.2	4.3	5.4	4.4	3.5	3.9	3.9	5.0	5.2	5.6	4.3	7.3	5.0	4.1	13.0			
7	110	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.8	4.6	3.8	12.0			
8	110	2.9	3.8	4.8	3.9	3.1	3.4	3.4	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5			
6	125	2.7	3.5	4.4	3.6	2.8	3.2	3.2	4.1	4.2	4.6	3.5	6.0	4.1	3.4	10.6			
7	125	2.5	3.3	4.1	3.4	2.6	2.9	2.9	3.8	3.9	4.2	3.3	5.6	3.8	3.1	9.8			
8	125	2.3	3.1	3.9	3.2	2.5	2.8	2.8	3.6	3.7	4.1	3.1	5.3	3.6	3.0	9.3			

Thin Paint or Rusted Thin Paint

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **3233** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** 3241 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	7.4	9.9	12.4	10.2	7.9	8.9	8.9	11.4	11.9	12.9	9.9	16.9	11.4	9.4	29.8
6	100	6.4	8.5	10.7	8.8	6.8	7.7	7.7	9.8	10.2	11.1	8.5	14.5	9.8	8.1	25.6
6	110	5.4	7.2	9.0	7.4	5.7	6.5	6.5	8.2	8.6	9.3	7.2	12.2	8.2	6.8	21.5
6	125	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	90	7.1	9.4	11.8	9.7	7.5	8.5	8.5	10.8	11.3	12.2	9.4	16.0	10.8	8.9	28.2
7	100	6.1	8.1	10.2	8.4	6.5	7.3	7.3	9.3	9.7	10.6	8.1	13.8	9.3	7.7	24.4
7	110	5.2	6.9	8.7	7.1	5.5	6.2	6.2	8.0	8.3	9.0	6.9	11.8	8.0	6.6	20.8
7	125	4.2	5.6	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.3	5.6	9.6	6.5	5.4	16.9
8	90	6.5	8.7	10.9	9.0	7.0	7.8	7.8	10.0	10.5	11.3	8.7	14.8	10.0	8.3	26.1
8	100	5.6	7.5	9.4	7.7	6.0	6.7	6.7	8.6	9.0	9.7	7.5	12.7	8.6	7.1	22.5
8	110	4.8	6.4	8.0	6.6	5.1	5.7	5.7	7.3	7.6	8.3	6.4	10.8	7.3	6.0	19.1
8	125	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **4111** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	11.3	15.0	18.8	15.5	12.0	13.5	13.5	17.3	18.0	19.5	15.0	25.5	17.3	14.3	45.1
6	100	9.6	12.8	16.0	13.2	10.2	11.5	11.5	14.7	15.4	16.6	12.8	21.8	14.7	12.2	38.4
6	110	8.1	10.8	13.4	11.1	8.6	9.7	9.7	12.4	12.9	14.0	10.8	18.3	12.4	10.2	32.3
6	125	6.7	8.9	11.1	9.1	7.1	8.0	8.0	10.2	10.6	11.5	8.9	15.1	10.2	8.4	26.6
7	90	10.5	14.1	17.6	14.5	11.2	12.7	12.7	16.2	16.9	18.3	14.1	23.9	16.2	13.4	42.2
7	100	9.1	12.2	15.2	12.6	9.7	11.0	11.0	14.0	14.6	15.8	12.2	20.7	14.0	11.6	36.6
7	110	7.8	10.4	13.0	10.7	8.3	9.4	9.4	12.0	12.5	13.6	10.4	17.7	12.0	9.9	31.3
7	125	6.4	8.5	10.6	8.7	6.8	7.6	7.6	9.7	10.2	11.0	8.5	14.4	9.7	8.0	25.4
8	90	9.8	13.1	16.3	13.5	10.5	11.8	11.8	15.0	15.7	17.0	13.1	22.2	15.0	12.4	39.2
8	100	8.4	11.2	14.1	11.6	9.0	10.1	10.1	12.9	13.5	14.6	11.2	19.1	12.9	10.7	33.7
8	110	7.2	9.6	12.0	9.9	7.7	8.6	8.6	11.0	11.5	12.4	9.6	16.3	11.0	9.1	28.7
8	125	5.8	7.8	9.7	8.0	6.2	7.0	7.0	8.9	9.3	10.1	7.8	13.2	8.9	7.4	23.3

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **4112** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	22.5	30.1	37.6	31.0	24.0	27.1	27.1	34.6	36.1	39.1	30.1	51.1	34.6	28.6	90.2
6	100	19.2	25.6	32.0	26.4	20.5	23.0	23.0	29.4	30.7	33.3	25.6	43.5	29.4	24.3	76.8
6	110	16.1	21.5	26.9	22.2	17.2	19.4	19.4	24.7	25.8	28.0	21.5	36.6	24.7	20.4	64.5
6	125	13.2	17.6	22.0	18.2	14.1	15.9	15.9	20.3	21.2	22.9	17.6	30.0	20.3	16.8	52.9
7	90	21.3	28.4	35.5	29.2	22.7	25.6	25.6	32.7	34.1	36.9	28.4	48.3	32.7	27.0	85.2
7	100	18.3	24.4	30.5	25.1	19.5	21.9	21.9	28.0	29.2	31.7	24.4	41.4	28.0	23.2	73.1
7	110	15.5	20.7	25.9	21.3	16.6	18.6	18.6	23.8	24.9	26.9	20.7	35.2	23.8	19.7	62.2
7	125	12.7	16.9	21.2	17.4	13.6	15.2	15.2	19.5	20.3	22.0	16.9	28.8	19.5	16.1	50.8
8	90	19.6	26.1	32.7	26.9	20.9	23.5	23.5	30.1	31.4	34.0	26.1	44.4	30.1	24.8	78.4
8	100	16.9	22.5	28.1	23.2	18.0	20.2	20.2	25.9	27.0	29.2	22.5	38.2	25.9	21.4	67.5
8	110	14.4	19.2	23.9	19.7	15.3	17.2	17.2	22.0	23.0	24.9	19.2	32.6	22.0	18.2	57.5
8	125	11.7	15.6	19.5	16.0	12.5	14.0	14.0	17.9	18.7	20.2	15.6	26.5	17.9	14.8	46.7

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **High Profile Range** **SSPC-SP 5** **Tables** **4113** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.7	9.0	11.2	9.3	7.2	8.1	8.1	10.3	10.8	11.7	9.0	15.3	10.3	8.5	27.0
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0
6	110	4.8	6.5	8.1	6.6	5.2	5.8	5.8	7.4	7.7	8.4	6.5	11.0	7.4	6.1	19.4
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9
7	90	6.5	8.7	10.9	9.0	7.0	7.9	7.9	10.0	10.5	11.3	8.7	14.8	10.0	8.3	26.2
7	100	5.7	7.5	9.4	7.8	6.0	6.8	6.8	8.7	9.1	9.8	7.5	12.8	8.7	7.2	22.6
7	110	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.4	6.4	10.9	7.4	6.1	19.3
7	125	3.9	5.3	6.6	5.4	4.2	4.7	4.7	6.1	6.3	6.8	5.3	8.9	6.1	5.0	15.8
8	90	5.9	7.9	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.9	13.4	9.0	7.5	23.6
8	100	5.1	6.7	8.4	6.9	5.4	6.1	6.1	7.8	8.1	8.8	6.7	11.5	7.8	6.4	20.2
8	110	4.3	5.7	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.7	9.8	6.6	5.5	17.2
8	125	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.1	4.7	7.9	5.4	4.4	14.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **4121** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	10.1	13.5	16.9	13.9	10.8	12.1	12.1	15.5	16.2	17.5	13.5	22.9	15.5	12.8	40.5
6	100	8.6	11.5	14.4	11.9	9.2	10.4	10.4	13.2	13.8	15.0	11.5	19.6	13.2	10.9	34.6
6	110	7.3	9.7	12.2	10.0	7.8	8.8	8.8	11.2	11.7	12.6	9.7	16.5	11.2	9.2	29.2
6	125	5.9	7.9	9.9	8.2	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.5	9.1	7.5	23.7
7	90	9.8	13.0	16.3	13.4	10.4	11.7	11.7	15.0	15.7	17.0	13.0	22.2	15.0	12.4	39.1
7	100	8.5	11.3	14.1	11.7	9.1	10.2	10.2	13.0	13.6	14.7	11.3	19.2	13.0	10.7	33.9
7	110	7.2	9.7	12.1	9.9	7.7	8.7	8.7	11.1	11.6	12.5	9.7	16.4	11.1	9.2	29.0
7	125	5.9	7.9	9.9	8.1	6.3	7.1	7.1	9.1	9.5	10.2	7.9	13.4	9.1	7.5	23.6
8	90	8.8	11.7	14.7	12.1	9.4	10.6	10.6	13.5	14.1	15.3	11.7	20.0	13.5	11.2	35.2
8	100	7.6	10.1	12.7	10.4	8.1	9.1	9.1	11.6	12.1	13.2	10.1	17.2	11.6	9.6	30.4
8	110	6.4	8.6	10.7	8.8	6.9	7.7	7.7	9.9	10.3	11.2	8.6	14.6	9.9	8.2	25.8
8	125	5.3	7.0	8.8	7.2	5.6	6.3	6.3	8.1	8.4	9.1	7.0	11.9	8.1	6.7	21.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **4122** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	20.2	27.0	33.7	27.8	21.6	24.3	24.3	31.0	32.4	35.1	27.0	45.9	31.0	25.6	80.9
6	100	17.3	23.0	28.8	23.7	18.4	20.7	20.7	26.5	27.6	30.0	23.0	39.2	26.5	21.9	69.1
6	110	14.6	19.5	24.3	20.0	15.6	17.5	17.5	22.4	23.4	25.3	19.5	33.1	22.4	18.5	58.4
6	125	11.9	15.8	19.8	16.3	12.7	14.2	14.2	18.2	19.0	20.6	15.8	26.9	18.2	15.0	47.5
7	90	19.7	26.3	32.9	27.1	21.1	23.7	23.7	30.3	31.6	34.2	26.3	44.8	30.3	25.0	79.0
7	100	17.0	22.6	28.3	23.3	18.1	20.4	20.4	26.0	27.2	29.4	22.6	38.5	26.0	21.5	67.9
7	110	14.5	19.3	24.1	19.9	15.4	17.4	17.4	22.2	23.2	25.1	19.3	32.8	22.2	18.3	57.9
7	125	11.9	15.8	19.8	16.3	12.7	14.2	14.2	18.2	19.0	20.6	15.8	26.9	18.2	15.0	47.5
8	90	17.6	23.5	29.4	24.2	18.8	21.1	21.1	27.0	28.2	30.5	23.5	39.9	27.0	22.3	70.5
8	100	15.2	20.2	25.3	20.8	16.2	18.2	18.2	23.3	24.3	26.3	20.2	34.4	23.3	19.2	60.7
8	110	12.9	17.2	21.5	17.7	13.7	15.5	15.5	19.8	20.6	22.3	17.2	29.2	19.8	16.3	51.5
8	125	10.5	14.0	17.5	14.4	11.2	12.6	12.6	16.1	16.8	18.2	14.0	23.8	16.1	13.3	41.9

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **4123** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	90	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	7.0	4.7	3.9	12.3
7	100	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.6
7	110	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	9.0
7	125	1.8	2.5	3.1	2.5	2.0	2.2	2.2	2.8	2.9	3.2	2.5	4.2	2.8	2.3	7.4
8	90	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
8	100	2.5	3.4	4.2	3.5	2.7	3.0	3.0	3.9	4.0	4.4	3.4	5.7	3.9	3.2	10.1
8	110	2.1	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.4	3.7	2.9	4.9	3.3	2.7	8.6
8	125	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **4131** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting																		
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	5.0	6.7	8.3	6.9	5.3	6.0	6.0	7.7	8.0	8.7	6.7	11.3	7.7	6.3	20.0
6	100	4.3	5.8	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.8	9.8	6.6	5.5	17.3
6	110	3.6	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.8	6.3	4.9	8.3	5.6	4.6	14.6
6	125	3.0	4.0	5.0	4.1	3.2	3.6	3.6	4.6	4.8	5.2	4.0	6.7	4.6	3.8	11.9
7	90	4.6	6.1	7.7	6.3	4.9	5.5	5.5	7.1	7.4	8.0	6.1	10.4	7.1	5.8	18.4
7	100	4.0	5.3	6.6	5.4	4.2	4.8	4.8	6.1	6.3	6.9	5.3	9.0	6.1	5.0	15.8
7	110	3.4	4.5	5.6	4.6	3.6	4.0	4.0	5.2	5.4	5.8	4.5	7.6	5.2	4.3	13.5
7	125	2.8	3.7	4.6	3.8	2.9	3.3	3.3	4.2	4.4	4.8	3.7	6.3	4.2	3.5	11.0
8	90	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
8	100	3.8	5.1	6.3	5.2	4.0	4.6	4.6	5.8	6.1	6.6	5.1	8.6	5.8	4.8	15.2
8	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.2	5.6	4.3	7.3	4.9	4.1	12.9
8	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.5

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **4132** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	10.0	13.3	16.6	13.7	10.7	12.0	12.0	15.3	16.0	17.3	13.3	22.6	15.3	12.7	39.9
6	100	8.6	11.5	14.4	11.9	9.2	10.4	10.4	13.2	13.8	15.0	11.5	19.6	13.2	10.9	34.6
6	110	7.3	9.7	12.2	10.0	7.8	8.8	8.8	11.2	11.7	12.6	9.7	16.5	11.2	9.2	29.2
6	125	5.9	7.9	9.9	8.2	6.3	7.1	7.1	9.1	9.5	10.3	7.9	13.5	9.1	7.5	23.7
7	90	9.2	12.3	15.3	12.6	9.8	11.0	11.0	14.1	14.7	16.0	12.3	20.9	14.1	11.7	36.8
7	100	7.9	10.6	13.2	10.9	8.4	9.5	9.5	12.1	12.7	13.7	10.6	18.0	12.1	10.0	31.7
7	110	6.7	9.0	11.2	9.3	7.2	8.1	8.1	10.3	10.8	11.7	9.0	15.3	10.3	8.5	27.0
7	125	5.5	7.3	9.2	7.6	5.9	6.6	6.6	8.4	8.8	9.5	7.3	12.5	8.4	7.0	22.0
8	90	8.8	11.7	14.7	12.1	9.4	10.6	10.6	13.5	14.1	15.3	11.7	20.0	13.5	11.2	35.2
8	100	7.6	10.1	12.7	10.4	8.1	9.1	9.1	11.6	12.1	13.2	10.1	17.2	11.6	9.6	30.4
8	110	6.4	8.6	10.7	8.8	6.9	7.7	7.7	9.9	10.3	11.2	8.6	14.6	9.9	8.2	25.8
8	125	5.3	7.0	8.8	7.2	5.6	6.3	6.3	8.1	8.4	9.1	7.0	11.9	8.1	6.7	21.1

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **4133** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Low Profile Range** **SSPC-SP 7** **Tables** **4141** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	5.0	6.6	8.3	6.8	5.3	6.0	6.0	7.6	7.9	8.6	6.6	11.2	7.6	6.3	19.8	
6	100	4.3	5.7	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.4	5.7	9.6	6.5	5.4	17.0	
6	110	3.6	4.8	6.0	4.9	3.8	4.3	4.3	5.5	5.7	6.2	4.8	8.1	5.5	4.5	14.4	
6	125	3.0	3.9	4.9	4.1	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8	
7	90	4.7	6.3	7.8	6.5	5.0	5.6	5.6	7.2	7.5	8.1	6.3	10.7	7.2	6.0	18.8	
7	100	4.1	5.4	6.8	5.6	4.3	4.9	4.9	6.2	6.5	7.0	5.4	9.2	6.2	5.1	16.2	
7	110	3.5	4.6	5.8	4.8	3.7	4.2	4.2	5.3	5.6	6.0	4.6	7.9	5.3	4.4	13.9	
7	125	2.8	3.8	4.7	3.9	3.0	3.4	3.4	4.3	4.5	4.9	3.8	6.4	4.3	3.6	11.3	
8	90	4.4	5.8	7.3	6.0	4.7	5.2	5.2	6.7	7.0	7.6	5.8	9.9	6.7	5.5	17.5	
8	100	3.7	5.0	6.2	5.1	4.0	4.5	4.5	5.7	6.0	6.5	5.0	8.5	5.7	4.7	15.0	
8	110	3.2	4.3	5.3	4.4	3.4	3.8	3.8	4.9	5.1	5.5	4.3	7.2	4.9	4.0	12.8	
8	125	2.6	3.5	4.3	3.6	2.8	3.1	3.1	4.0	4.2	4.5	3.5	5.9	4.0	3.3	10.4	

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables 4211 CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	7.4	9.9	12.4	10.2	7.9	8.9	8.9	11.4	11.9	12.9	9.9	16.9	11.4	9.4	29.8
6	100	6.4	8.5	10.7	8.8	6.8	7.7	7.7	9.8	10.2	11.1	8.5	14.5	9.8	8.1	25.6
6	110	5.4	7.2	9.0	7.4	5.7	6.5	6.5	8.2	8.6	9.3	7.2	12.2	8.2	6.8	21.5
6	125	4.4	5.9	7.4	6.1	4.7	5.3	5.3	6.8	7.1	7.7	5.9	10.0	6.8	5.6	17.7
7	90	7.1	9.4	11.8	9.7	7.5	8.5	8.5	10.8	11.3	12.2	9.4	16.0	10.8	8.9	28.2
7	100	6.1	8.1	10.2	8.4	6.5	7.3	7.3	9.3	9.7	10.6	8.1	13.8	9.3	7.7	24.4
7	110	5.2	6.9	8.7	7.1	5.5	6.2	6.2	8.0	8.3	9.0	6.9	11.8	8.0	6.6	20.8
7	125	4.2	5.6	7.1	5.8	4.5	5.1	5.1	6.5	6.8	7.3	5.6	9.6	6.5	5.4	16.9
8	90	6.5	8.7	10.9	9.0	7.0	7.8	7.8	10.0	10.5	11.3	8.7	14.8	10.0	8.3	26.1
8	100	5.6	7.5	9.4	7.7	6.0	6.7	6.7	8.6	9.0	9.7	7.5	12.7	8.6	7.1	22.5
8	110	4.8	6.4	8.0	6.6	5.1	5.7	5.7	7.3	7.6	8.3	6.4	10.8	7.3	6.0	19.1
8	125	3.9	5.2	6.5	5.3	4.2	4.7	4.7	6.0	6.2	6.7	5.2	8.8	6.0	4.9	15.6

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** 4212 **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	14.9	19.8	24.8	20.4	15.9	17.9	17.9	22.8	23.8	25.8	19.8	33.7	22.8	18.9	59.5
6	100	12.7	16.9	21.2	17.4	13.6	15.2	15.2	19.5	20.3	22.0	16.9	28.8	19.5	16.1	50.8
6	110	10.8	14.4	18.0	14.9	11.5	13.0	13.0	16.6	17.3	18.8	14.4	24.5	16.6	13.7	43.3
6	125	8.9	11.8	14.8	12.2	9.4	10.6	10.6	13.6	14.2	15.3	11.8	20.1	13.6	11.2	35.4
7	90	14.1	18.8	23.5	19.4	15.0	16.9	16.9	21.6	22.6	24.4	18.8	32.0	21.6	17.9	56.4
7	100	12.1	16.2	20.2	16.6	12.9	14.5	14.5	18.6	19.4	21.0	16.2	27.5	18.6	15.4	48.5
7	110	10.4	13.9	17.4	14.3	11.1	12.5	12.5	16.0	16.7	18.1	13.9	23.7	16.0	13.2	41.8
7	125	8.5	11.3	14.1	11.6	9.0	10.2	10.2	13.0	13.6	14.7	11.3	19.2	13.0	10.7	33.9
8	90	13.1	17.5	21.9	18.0	14.0	15.8	15.8	20.1	21.0	22.8	17.5	29.8	20.1	16.6	52.5
8	100	11.2	15.0	18.7	15.4	12.0	13.5	13.5	17.2	18.0	19.5	15.0	25.5	17.2	14.2	45.0
8	110	9.5	12.7	15.9	13.1	10.2	11.5	11.5	14.6	15.3	16.5	12.7	21.6	14.6	12.1	38.2
8	125	7.8	10.4	13.0	10.7	8.3	9.3	9.3	11.9	12.5	13.5	10.4	17.6	11.9	9.9	31.1

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **4213** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	4.5	6.0	7.5	6.2	4.8	5.4	5.4	6.9	7.2	7.8	6.0	10.2	6.9	5.7	17.9
6	100	3.8	5.1	6.4	5.3	4.1	4.6	4.6	5.9	6.1	6.7	5.1	8.7	5.9	4.9	15.4
6	110	3.2	4.3	5.4	4.4	3.5	3.9	3.9	5.0	5.2	5.6	4.3	7.3	5.0	4.1	13.0
6	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.1	4.2	4.6	3.5	6.0	4.1	3.4	10.6
7	90	4.4	5.8	7.3	6.0	4.7	5.2	5.2	6.7	7.0	7.6	5.8	9.9	6.7	5.5	17.4
7	100	3.8	5.0	6.3	5.2	4.0	4.5	4.5	5.8	6.0	6.5	5.0	8.5	5.8	4.8	15.1
7	110	3.2	4.3	5.4	4.4	3.4	3.9	3.9	4.9	5.1	5.6	4.3	7.3	4.9	4.1	12.9
7	125	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.5
8	90	3.9	5.2	6.6	5.4	4.2	4.7	4.7	6.0	6.3	6.8	5.2	8.9	6.0	5.0	15.7
8	100	3.4	4.5	5.6	4.6	3.6	4.0	4.0	5.2	5.4	5.8	4.5	7.6	5.2	4.3	13.5
8	110	2.9	3.8	4.8	3.9	3.1	3.4	3.4	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
8	125	2.3	3.1	3.9	3.2	2.5	2.8	2.8	3.6	3.7	4.0	3.1	5.3	3.6	3.0	9.3

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **Low Profile Range** **SSPC-SP 10** **Tables** **4221** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.7	9.0	11.2	9.3	7.2	8.1	8.1	10.3	10.8	11.7	9.0	15.3	10.3	8.5	27.0
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0
6	110	4.8	6.5	8.1	6.6	5.2	5.8	5.8	7.4	7.7	8.4	6.5	11.0	7.4	6.1	19.4
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9
7	90	6.5	8.7	10.9	9.0	7.0	7.9	7.9	10.0	10.5	11.3	8.7	14.8	10.0	8.3	26.2
7	100	5.7	7.5	9.4	7.8	6.0	6.8	6.8	8.7	9.1	9.8	7.5	12.8	8.7	7.2	22.6
7	110	4.8	6.4	8.0	6.6	5.1	5.8	5.8	7.4	7.7	8.4	6.4	10.9	7.4	6.1	19.3
7	125	3.9	5.3	6.6	5.4	4.2	4.7	4.7	6.1	6.3	6.8	5.3	8.9	6.1	5.0	15.8
8	90	5.9	7.9	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.9	13.4	9.0	7.5	23.6
8	100	5.1	6.7	8.4	6.9	5.4	6.1	6.1	7.8	8.1	8.8	6.7	11.5	7.8	6.4	20.2
8	110	4.3	5.7	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.7	9.8	6.6	5.5	17.2
8	125	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.1	4.7	7.9	5.4	4.4	14.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **4222** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	13.4	17.8	22.3	18.4	14.3	16.0	16.0	20.5	21.4	23.2	17.8	30.3	20.5	16.9	53.5
6	100	11.5	15.4	19.2	15.8	12.3	13.8	13.8	17.7	18.4	20.0	15.4	26.1	17.7	14.6	46.1
6	110	9.7	12.9	16.1	13.3	10.3	11.6	11.6	14.8	15.5	16.8	12.9	21.9	14.8	12.3	38.7
6	125	7.9	10.6	13.2	10.9	8.4	9.5	9.5	12.1	12.7	13.7	10.6	17.9	12.1	10.0	31.7
7	90	13.1	17.4	21.8	18.0	14.0	15.7	15.7	20.1	20.9	22.7	17.4	29.7	20.1	16.6	52.3
7	100	11.3	15.1	18.9	15.5	12.1	13.6	13.6	17.3	18.1	19.6	15.1	25.6	17.3	14.3	45.3
7	110	9.7	12.9	16.1	13.3	10.3	11.6	11.6	14.8	15.4	16.7	12.9	21.9	14.8	12.2	38.6
7	125	7.9	10.5	13.1	10.8	8.4	9.4	9.4	12.1	12.6	13.6	10.5	17.8	12.1	10.0	31.5
8	90	11.8	15.7	19.7	16.2	12.6	14.2	14.2	18.1	18.9	20.4	15.7	26.7	18.1	14.9	47.2
8	100	10.1	13.5	16.9	13.9	10.8	12.1	12.1	15.5	16.2	17.5	13.5	22.9	15.5	12.8	40.5
8	110	8.6	11.4	14.3	11.8	9.2	10.3	10.3	13.2	13.7	14.9	11.4	19.5	13.2	10.9	34.3
8	125	7.0	9.3	11.7	9.6	7.5	8.4	8.4	10.8	11.2	12.2	9.3	15.9	10.8	8.9	28.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **High Profile Range** **SSPC-SP 10** **Tables** **4223** **CP**

Operating Conditions		Consumption Rate lbs/ft^2 of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	8.9
6	100	1.9	2.6	3.2	2.6	2.0	2.3	2.3	2.9	3.1	3.3	2.6	4.4	2.9	2.4	7.7
6	110	1.6	2.2	2.7	2.2	1.7	1.9	1.9	2.5	2.6	2.8	2.2	3.7	2.5	2.1	6.5
6	125	1.3	1.8	2.2	1.8	1.4	1.6	1.6	2.0	2.1	2.3	1.8	3.0	2.0	1.7	5.3
7	90	2.0	2.7	3.4	2.8	2.2	2.5	2.5	3.1	3.3	3.5	2.7	4.6	3.1	2.6	8.2
7	100	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.1	2.3	4.0	2.7	2.2	7.0
7	110	1.5	2.0	2.5	2.1	1.6	1.8	1.8	2.3	2.4	2.6	2.0	3.4	2.3	1.9	6.0
7	125	1.2	1.6	2.0	1.7	1.3	1.5	1.5	1.9	2.0	2.1	1.6	2.8	1.9	1.6	4.9
8	90	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.1	3.4	2.6	4.5	3.0	2.5	7.9
8	100	1.7	2.2	2.8	2.3	1.8	2.0	2.0	2.6	2.7	2.9	2.2	3.8	2.6	2.1	6.7
8	110	1.4	1.9	2.4	2.0	1.5	1.7	1.7	2.2	2.3	2.5	1.9	3.2	2.2	1.8	5.7
8	125	1.2	1.6	1.9	1.6	1.2	1.4	1.4	1.8	1.9	2.0	1.6	2.7	1.8	1.5	4.7

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **Low Profile Range** **SSPC-SP 6** **Tables** **4231** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	3.3	4.5	5.6	4.6	3.6	4.0	4.0	5.1	5.3	5.8	4.5	7.6	5.1	4.2	13.4
6	100	2.9	3.8	4.8	4.0	3.1	3.5	3.5	4.4	4.6	5.0	3.8	6.5	4.4	3.6	11.5
6	110	2.4	3.3	4.1	3.3	2.6	2.9	2.9	3.7	3.9	4.2	3.3	5.5	3.7	3.1	9.8
6	125	2.0	2.6	3.3	2.7	2.1	2.4	2.4	3.0	3.2	3.4	2.6	4.5	3.0	2.5	7.9
7	90	3.1	4.1	5.1	4.2	3.3	3.7	3.7	4.7	4.9	5.3	4.1	7.0	4.7	3.9	12.3
7	100	2.6	3.5	4.4	3.6	2.8	3.2	3.2	4.0	4.2	4.6	3.5	6.0	4.0	3.3	10.6
7	110	2.2	3.0	3.7	3.1	2.4	2.7	2.7	3.4	3.6	3.9	3.0	5.1	3.4	2.8	9.0
7	125	1.8	2.5	3.1	2.5	2.0	2.2	2.2	2.8	2.9	3.2	2.5	4.2	2.8	2.3	7.4
8	90	2.9	3.9	4.9	4.0	3.1	3.5	3.5	4.5	4.7	5.1	3.9	6.7	4.5	3.7	11.8
8	100	2.5	3.4	4.2	3.5	2.7	3.0	3.0	3.9	4.0	4.4	3.4	5.7	3.9	3.2	10.1
8	110	2.1	2.9	3.6	3.0	2.3	2.6	2.6	3.3	3.4	3.7	2.9	4.9	3.3	2.7	8.6
8	125	1.8	2.3	2.9	2.4	1.9	2.1	2.1	2.7	2.8	3.0	2.3	4.0	2.7	2.2	7.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **4232** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	6.7	8.9	11.1	9.2	7.1	8.0	8.0	10.3	10.7	11.6	8.9	15.2	10.3	8.5	26.7
6	100	5.8	7.7	9.6	7.9	6.1	6.9	6.9	8.8	9.2	10.0	7.7	13.1	8.8	7.3	23.0
6	110	4.9	6.5	8.1	6.7	5.2	5.8	5.8	7.5	7.8	8.4	6.5	11.0	7.5	6.2	19.5
6	125	4.0	5.3	6.6	5.5	4.2	4.8	4.8	6.1	6.4	6.9	5.3	9.0	6.1	5.0	15.9
7	90	6.1	8.2	10.2	8.4	6.5	7.4	7.4	9.4	9.8	10.6	8.2	13.9	9.4	7.8	24.5
7	100	5.3	7.0	8.8	7.3	5.6	6.3	6.3	8.1	8.4	9.2	7.0	12.0	8.1	6.7	21.1
7	110	4.5	6.0	7.5	6.2	4.8	5.4	5.4	6.9	7.2	7.8	6.0	10.2	6.9	5.7	17.9
7	125	3.7	4.9	6.1	5.0	3.9	4.4	4.4	5.6	5.9	6.4	4.9	8.3	5.6	4.7	14.7
8	90	5.9	7.9	9.8	8.1	6.3	7.1	7.1	9.0	9.4	10.2	7.9	13.4	9.0	7.5	23.6
8	100	5.1	6.7	8.4	6.9	5.4	6.1	6.1	7.8	8.1	8.8	6.7	11.5	7.8	6.4	20.2
8	110	4.3	5.7	7.2	5.9	4.6	5.2	5.2	6.6	6.9	7.5	5.7	9.8	6.6	5.5	17.2
8	125	3.5	4.7	5.8	4.8	3.7	4.2	4.2	5.4	5.6	6.1	4.7	7.9	5.4	4.4	14.0

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **4233** **CP**

Operating Conditions		Consumption Rate lbs/ft² of Blasting															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	1.0	1.3	1.7	1.4	1.1	1.2	1.2	1.5	1.6	1.7	1.3	2.3	1.5	1.3	4.0
7	90	0.9	1.2	1.5	1.3	1.0	1.1	1.1	1.4	1.5	1.6	1.2	2.1	1.4	1.2	3.7
8	90	0.9	1.2	1.5	1.2	0.9	1.1	1.1	1.4	1.4	1.5	1.2	2.0	1.4	1.1	3.5
6	100	0.9	1.2	1.4	1.2	0.9	1.0	1.0	1.3	1.4	1.5	1.2	2.0	1.3	1.1	3.5
7	100	0.8	1.1	1.3	1.1	0.8	1.0	1.0	1.2	1.3	1.4	1.1	1.8	1.2	1.0	3.2
8	100	0.8	1.0	1.3	1.0	0.8	0.9	0.9	1.2	1.2	1.3	1.0	1.7	1.2	1.0	3.0
6	110	0.7	1.0	1.2	1.0	0.8	0.9	0.9	1.1	1.2	1.3	1.0	1.7	1.1	0.9	2.9
7	110	0.7	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.1	1.2	0.9	1.5	1.0	0.9	2.7
8	110	0.6	0.9	1.1	0.9	0.7	0.8	0.8	1.0	1.0	1.1	0.9	1.5	1.0	0.8	2.6
6	125	0.6	0.8	1.0	0.8	0.6	0.7	0.7	0.9	1.0	1.0	0.8	1.4	0.9	0.8	2.4
7	125	0.6	0.7	0.9	0.8	0.6	0.7	0.7	0.8	0.9	1.0	0.7	1.2	0.8	0.7	2.2
8	125	0.5	0.7	0.9	0.7	0.6	0.6	0.6	0.8	0.8	0.9	0.7	1.2	0.8	0.7	2.1

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **4241** **CP**

This Section of The Data Tables Contains Tables from 1111 through 4241 for Recyclable Abrasive Consumption, Abrasive Productivity and Production Rates.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
1111 RCC With Recycling											
6	90	260	32	381	139	0.1	1.3	0.5	239	263	246
7	90	377	44	525	191	0.1	1.2	0.5	347	381	356
8	90	520	57	673	245	0.1	1.2	0.5	479	525	491
6	100	330	35	418	152	0.1	1.1	0.4	336	368	344
7	100	480	48	574	209	0.1	1.1	0.4	488	535	501
8	100	660	62	734	267	0.1	1.0	0.4	671	736	689
6	110	415	37	444	162	0.1	1.0	0.4	466	511	478
7	110	605	52	616	224	0.1	0.9	0.4	679	745	697
8	110	831	66	784	286	0.1	0.8	0.3	933	1024	958
6	125	578	42	505	184	0.1	0.8	0.3	754	827	773
7	125	841	59	700	255	0.1	0.7	0.3	1097	1203	1125
8	125	1157	75	891	325	0.1	0.7	0.3	1509	1655	1548

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 5**

Tables 1111

RCC , RCP and PR

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
		1112	**RCC With Recycling**								
6	90	173	32	381	139	0.2	2.0	0.8	159	175	163
7	90	251	44	525	191	0.2	1.9	0.7	231	253	237
8	90	346	57	673	245	0.2	1.7	0.7	318	349	327
6	100	220	35	418	152	0.2	1.7	0.7	224	245	230
7	100	320	48	574	209	0.1	1.6	0.6	325	357	334
8	100	440	62	734	267	0.1	1.5	0.6	447	491	459
6	110	277	37	444	162	0.1	1.4	0.6	311	341	319
7	110	403	52	616	224	0.1	1.4	0.5	453	497	465
8	110	554	66	784	286	0.1	1.3	0.5	622	683	639
6	125	385	42	505	184	0.1	1.2	0.5	502	551	515
7	125	561	59	700	255	0.1	1.1	0.4	731	802	751
8	125	772	75	891	325	0.1	1.0	0.4	1007	1104	1033

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 5**

Tables 1112

RCC , RCP and PR

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft^2/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft^2: Steel Iron	Consumption Rate lbs/ft^2: Garnet	Consumption Rate lbs/ft^2: Alumina	Production Rate ft^2/hr of Blasting [1]: Steel Iron	Production Rate ft^2/hr of Blasting [1]: Garnet	Production Rate ft^2/hr of Blasting [1]: Alumina
		1113	**RCC With Recycling**								
6	90	87	32	381	139	0.4	3.9	1.5	80	88	82
7	90	126	44	525	191	0.3	3.7	1.5	116	127	119
8	90	173	57	673	245	0.3	3.5	1.4	159	175	163
6	100	110	35	418	152	0.3	3.4	1.3	112	123	115
7	100	160	48	574	209	0.3	3.2	1.3	163	178	167
8	100	220	62	734	267	0.3	3.0	1.2	224	245	230
6	110	138	37	444	162	0.3	2.9	1.1	155	170	159
7	110	202	52	616	224	0.3	2.7	1.1	227	249	233
8	110	277	66	784	286	0.2	2.5	1.0	311	341	319
6	125	193	42	505	184	0.2	2.3	0.9	252	276	258
7	125	280	59	700	255	0.2	2.2	0.9	365	401	375
8	125	386	75	891	325	0.2	2.1	0.8	503	552	517

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1121	**RCC With Recycling**								
6	90	283	32	381	139	0.1	1.2	0.5	260	286	267
7	90	414	44	525	191	0.1	1.1	0.4	381	418	391
8	90	567	57	673	245	0.1	1.1	0.4	522	573	536
6	100	360	35	418	152	0.1	1.0	0.4	366	402	376
7	100	525	48	574	209	0.1	1.0	0.4	534	586	548
8	100	720	62	734	267	0.1	0.9	0.4	732	803	751
6	110	453	37	444	162	0.1	0.9	0.3	509	558	522
7	110	660	52	616	224	0.1	0.8	0.3	741	813	761
8	110	907	66	784	286	0.1	0.8	0.3	1019	1117	1045
6	125	631	42	505	184	0.1	0.7	0.3	823	903	844
7	125	919	59	700	255	0.1	0.7	0.3	1198	1315	1230
8	125	1261	75	891	325	0.1	0.6	0.2	1644	1804	1687

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Tables 1121

Hard Coating | **Low Profile Range** | **SSPC-SP 10**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1122 RCC With Recycling									
6	90	189	32	381	139	0.2	1.8	0.7	174	191	179
7	90	276	44	525	191	0.2	1.7	0.7	254	279	261
8	90	378	57	673	245	0.1	1.6	0.6	348	382	357
6	100	240	35	418	152	0.1	1.6	0.6	244	268	250
7	100	350	48	574	209	0.1	1.5	0.6	356	390	365
8	100	480	62	734	267	0.1	1.4	0.5	488	535	501
6	110	302	37	444	162	0.1	1.3	0.5	339	372	348
7	110	440	52	616	224	0.1	1.3	0.5	494	542	507
8	110	604	66	784	286	0.1	1.2	0.5	678	744	696
6	125	420	42	505	184	0.1	1.1	0.4	548	601	562
7	125	613	59	700	255	0.1	1.0	0.4	799	877	820
8	125	841	75	891	325	0.1	1.0	0.4	1097	1203	1125

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1123 RCC With Recycling									
6	90	94	32	381	139	0.3	3.6	1.4	87	95	89
7	90	138	44	525	191	0.3	3.4	1.3	127	139	130
8	90	189	57	673	245	0.3	3.2	1.2	174	191	179
6	100	120	35	418	152	0.3	3.1	1.2	122	134	125
7	100	175	48	574	209	0.3	2.9	1.1	178	195	183
8	100	240	62	734	267	0.3	2.7	1.1	244	268	250
6	110	151	37	444	162	0.2	2.6	1.0	170	186	174
7	110	220	52	616	224	0.2	2.5	1.0	247	271	254
8	110	302	66	784	286	0.2	2.3	0.9	339	372	348
6	125	210	42	505	184	0.2	2.2	0.8	274	300	281
7	125	306	59	700	255	0.2	2.1	0.8	399	438	409
8	125	420	75	891	325	0.2	1.9	0.7	548	601	562

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1131 RCC With Recycling									
6	90	590	32	381	139	0.1	0.6	0.2	543	596	557
7	90	886	44	525	191	0.0	0.5	0.2	815	895	837
8	90	1181	57	673	245	0.0	0.5	0.2	1087	1193	1116
6	100	750	35	418	152	0.0	0.5	0.2	763	837	783
7	100	1125	48	574	209	0.0	0.5	0.2	1144	1255	1174
8	100	1500	62	734	267	0.0	0.4	0.2	1525	1673	1565
6	110	945	37	444	162	0.0	0.4	0.2	1061	1164	1089
7	110	1415	52	616	224	0.0	0.4	0.2	1589	1743	1631
8	110	1887	66	784	286	0.0	0.4	0.1	2119	2325	2175
6	125	1314	42	505	184	0.0	0.3	0.1	1713	1880	1758
7	125	1973	59	700	255	0.0	0.3	0.1	2572	2822	2640
8	125	2629	75	891	325	0.0	0.3	0.1	3428	3761	3518

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1132	**RCC With Recycling**								
6	90	393	32	381	139	0.1	0.9	0.3	362	397	371
7	90	591	44	525	191	0.1	0.8	0.3	544	597	558
8	90	788	57	673	245	0.1	0.8	0.3	725	796	744
6	100	500	35	418	152	0.1	0.7	0.3	508	558	522
7	100	750	48	574	209	0.1	0.7	0.3	763	837	783
8	100	1000	62	734	267	0.1	0.7	0.3	1017	1115	1043
6	110	630	37	444	162	0.1	0.6	0.2	708	776	726
7	110	943	52	616	224	0.1	0.6	0.2	1059	1162	1087
8	110	1258	66	784	286	0.1	0.6	0.2	1413	1550	1450
6	125	876	42	505	184	0.0	0.5	0.2	1142	1253	1172
7	125	1315	59	700	255	0.0	0.5	0.2	1715	1881	1760
8	125	1753	75	891	325	0.0	0.5	0.2	2286	2507	2346

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6**

Tables 1132

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1133	**RCC With Recycling**								
6	90	197	32	381	139	0.2	1.7	0.7	181	199	186
7	90	295	44	525	191	0.1	1.6	0.6	272	298	279
8	90	394	57	673	245	0.1	1.5	0.6	363	398	372
6	100	250	35	418	152	0.1	1.5	0.6	254	279	261
7	100	375	48	574	209	0.1	1.4	0.5	381	418	391
8	100	500	62	734	267	0.1	1.3	0.5	508	558	522
6	110	315	37	444	162	0.1	1.3	0.5	354	388	363
7	110	472	52	616	224	0.1	1.2	0.5	530	582	544
8	110	629	66	784	286	0.1	1.1	0.4	706	775	725
6	125	438	42	505	184	0.1	1.0	0.4	571	627	586
7	125	658	59	700	255	0.1	1.0	0.4	858	941	881
8	125	876	75	891	325	0.1	0.9	0.4	1142	1253	1172

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1141	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Tables 1141

Hard Coating | **Low Profile Range** | **SSPC-SP 7**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1211 RCC With Recycling									
6	90	390	32	381	139	0.1	0.9	0.3	359	394	368
7	90	566	44	525	191	0.1	0.8	0.3	521	572	535
8	90	779	57	673	245	0.1	0.8	0.3	717	787	736
6	100	495	35	418	152	0.1	0.8	0.3	503	552	517
7	100	720	48	574	209	0.1	0.7	0.3	732	803	751
8	100	990	62	734	267	0.1	0.7	0.3	1007	1104	1033
6	110	623	37	444	162	0.1	0.6	0.2	700	768	718
7	110	908	52	616	224	0.1	0.6	0.2	1020	1119	1047
8	110	1246	66	784	286	0.1	0.6	0.2	1399	1535	1436
6	125	866	42	505	184	0.0	0.5	0.2	1129	1239	1159
7	125	1261	59	700	255	0.0	0.5	0.2	1644	1804	1687
8	125	1736	75	891	325	0.0	0.5	0.2	2263	2483	2323

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1212 RCC With Recycling									
6	90	260	32	381	139	0.1	1.3	0.5	239	263	246
7	90	377	44	525	191	0.1	1.2	0.5	347	381	356
8	90	520	57	673	245	0.1	1.2	0.5	479	525	491
6	100	330	35	418	152	0.1	1.1	0.4	336	368	344
7	100	480	48	574	209	0.1	1.1	0.4	488	535	501
8	100	660	62	734	267	0.1	1.0	0.4	671	736	689
6	110	415	37	444	162	0.1	1.0	0.4	466	511	478
7	110	605	52	616	224	0.1	0.9	0.4	679	745	697
8	110	831	66	784	286	0.1	0.8	0.3	933	1024	958
6	125	578	42	505	184	0.1	0.8	0.3	754	827	773
7	125	841	59	700	255	0.1	0.7	0.3	1097	1203	1125
8	125	1157	75	891	325	0.1	0.7	0.3	1509	1655	1548

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5**

Tables 1212

RCC , RCP and PR

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1213 RCC With Recycling									
6	90	130	32	381	139	0.2	2.6	1.0	120	131	123
7	90	189	44	525	191	0.2	2.5	1.0	174	191	179
8	90	260	57	673	245	0.2	2.3	0.9	239	263	246
6	100	165	35	418	152	0.2	2.3	0.9	168	184	172
7	100	240	48	574	209	0.2	2.1	0.8	244	268	250
8	100	330	62	734	267	0.2	2.0	0.8	336	368	344
6	110	208	37	444	162	0.2	1.9	0.7	234	256	240
7	110	303	52	616	224	0.2	1.8	0.7	340	373	349
8	110	415	66	784	286	0.2	1.7	0.7	466	511	478
6	125	289	42	505	184	0.1	1.6	0.6	377	413	387
7	125	420	59	700	255	0.1	1.5	0.6	548	601	562
8	125	579	75	891	325	0.1	1.4	0.5	755	828	775

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 5**

Tables 1213

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1221	**RCC With Recycling**								
6	90	425	32	381	139	0.1	0.8	0.3	391	429	401
7	90	621	44	525	191	0.1	0.8	0.3	572	627	587
8	90	850	57	673	245	0.1	0.7	0.3	782	858	803
6	100	540	35	418	152	0.1	0.7	0.3	549	602	563
7	100	788	48	574	209	0.1	0.7	0.3	801	879	822
8	100	1080	62	734	267	0.1	0.6	0.2	1098	1205	1127
6	110	680	37	444	162	0.1	0.6	0.2	764	838	784
7	110	990	52	616	224	0.1	0.6	0.2	1112	1220	1141
8	110	1360	66	784	286	0.0	0.5	0.2	1527	1676	1568
6	125	946	42	505	184	0.0	0.5	0.2	1233	1353	1266
7	125	1379	59	700	255	0.0	0.5	0.2	1798	1973	1845
8	125	1892	75	891	325	0.0	0.4	0.2	2467	2706	2532

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
1222 RCC With Recycling											
6	90	283	32	381	139	0.1	1.2	0.5	260	286	267
7	90	414	44	525	191	0.1	1.1	0.4	381	418	391
8	90	567	57	673	245	0.1	1.1	0.4	522	573	536
6	100	360	35	418	152	0.1	1.0	0.4	366	402	376
7	100	525	48	574	209	0.1	1.0	0.4	534	586	548
8	100	720	62	734	267	0.1	0.9	0.4	732	803	751
6	110	453	37	444	162	0.1	0.9	0.3	509	558	522
7	110	660	52	616	224	0.1	0.8	0.3	741	813	761
8	110	907	66	784	286	0.1	0.8	0.3	1019	1117	1045
6	125	631	42	505	184	0.1	0.7	0.3	823	903	844
7	125	919	59	700	255	0.1	0.7	0.3	1198	1315	1230
8	125	1261	75	891	325	0.1	0.6	0.2	1644	1804	1687

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1223 RCC With Recycling									
6	90	142	32	381	139	0.2	2.4	0.9	131	143	134
7	90	207	44	525	191	0.2	2.3	0.9	191	209	196
8	90	283	57	673	245	0.2	2.1	0.8	260	286	267
6	100	180	35	418	152	0.2	2.1	0.8	183	201	188
7	100	263	48	574	209	0.2	2.0	0.8	267	293	274
8	100	360	62	734	267	0.2	1.8	0.7	366	402	376
6	110	227	37	444	162	0.2	1.8	0.7	255	280	262
7	110	330	52	616	224	0.2	1.7	0.7	371	407	380
8	110	453	66	784	286	0.1	1.6	0.6	509	558	522
6	125	315	42	505	184	0.1	1.4	0.6	411	451	422
7	125	460	59	700	255	0.1	1.4	0.5	600	658	616
8	125	631	75	891	325	0.1	1.3	0.5	823	903	844

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint **Tables 1223**

Soft Coating | **High Profile Range** | **SSPC-SP 10**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1231	**RCC With Recycling**								
6	90	885	32	381	139	0.0	0.4	0.2	815	894	836
7	90	1329	44	525	191	0.0	0.4	0.1	1223	1342	1255
8	90	1772	57	673	245	0.0	0.3	0.1	1631	1789	1674
6	100	1125	35	418	152	0.0	0.3	0.1	1144	1255	1174
7	100	1688	48	574	209	0.0	0.3	0.1	1716	1883	1761
8	100	2250	62	734	267	0.0	0.3	0.1	2288	2510	2348
6	110	1417	37	444	162	0.0	0.3	0.1	1591	1746	1633
7	110	2123	52	616	224	0.0	0.3	0.1	2384	2616	2447
8	110	2831	66	784	286	0.0	0.2	0.1	3179	3488	3263
6	125	1972	42	505	184	0.0	0.2	0.1	2571	2821	2639
7	125	2959	59	700	255	0.0	0.2	0.1	3858	4233	3960
8	125	3943	75	891	325	0.0	0.2	0.1	5141	5640	5276

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 6**

Tables 1231

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1232 RCC With Recycling									
6	90	590	32	381	139	0.1	0.6	0.2	543	596	557
7	90	886	44	525	191	0.0	0.5	0.2	815	895	837
8	90	1181	57	673	245	0.0	0.5	0.2	1087	1193	1116
6	100	750	35	418	152	0.0	0.5	0.2	763	837	783
7	100	1125	48	574	209	0.0	0.5	0.2	1144	1255	1174
8	100	1500	62	734	267	0.0	0.4	0.2	1525	1673	1565
6	110	945	37	444	162	0.0	0.4	0.2	1061	1164	1089
7	110	1415	52	616	224	0.0	0.4	0.2	1589	1743	1631
8	110	1887	66	784	286	0.0	0.4	0.1	2119	2325	2175
6	125	1314	42	505	184	0.0	0.3	0.1	1713	1880	1758
7	125	1973	59	700	255	0.0	0.3	0.1	2572	2822	2640
8	125	2629	75	891	325	0.0	0.3	0.1	3428	3761	3518

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 6**

Tables 1232

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1233 RCC With Recycling									
6	90	295	32	381	139	0.1	1.2	0.5	272	298	279
7	90	443	44	525	191	0.1	1.1	0.4	408	447	418
8	90	591	57	673	245	0.1	1.0	0.4	544	597	558
6	100	375	35	418	152	0.1	1.0	0.4	381	418	391
7	100	563	48	574	209	0.1	0.9	0.4	572	628	587
8	100	750	62	734	267	0.1	0.9	0.3	763	837	783
6	110	472	37	444	162	0.1	0.8	0.3	530	582	544
7	110	708	52	616	224	0.1	0.8	0.3	795	872	816
8	110	944	66	784	286	0.1	0.7	0.3	1060	1163	1088
6	125	657	42	505	184	0.1	0.7	0.3	857	940	879
7	125	986	59	700	255	0.1	0.6	0.2	1286	1410	1319
8	125	1314	75	891	325	0.1	0.6	0.2	1713	1880	1758

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		1241	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Tables 1241

Soft Coating | **Low Profile Range** | **SSPC-SP 7**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
2111 RCC With Recycling											
6	90	213	32	381	139	0.1	1.6	0.6	196	215	201
7	90	307	44	525	191	0.1	1.5	0.6	283	310	290
8	90	426	57	673	245	0.1	1.4	0.6	392	430	402
6	100	270	35	418	152	0.1	1.4	0.5	275	301	282
7	100	390	48	574	209	0.1	1.3	0.5	397	435	407
8	100	540	62	734	267	0.1	1.2	0.5	549	602	563
6	110	340	37	444	162	0.1	1.2	0.5	382	419	392
7	110	491	52	616	224	0.1	1.1	0.4	551	605	566
8	110	679	66	784	286	0.1	1.0	0.4	763	837	783
6	125	474	42	505	184	0.1	1.0	0.4	618	678	634
7	125	684	59	700	255	0.1	0.9	0.4	892	978	915
8	125	947	75	891	325	0.1	0.8	0.3	1235	1355	1267

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2112 RCC With Recycling									
6	90	142	32	381	139	0.2	2.4	0.9	131	143	134
7	90	204	44	525	191	0.2	2.3	0.9	188	206	193
8	90	284	57	673	245	0.2	2.1	0.8	261	287	268
6	100	180	35	418	152	0.2	2.1	0.8	183	201	188
7	100	260	48	574	209	0.2	2.0	0.8	264	290	271
8	100	360	62	734	267	0.2	1.8	0.7	366	402	376
6	110	226	37	444	162	0.2	1.8	0.7	254	278	260
7	110	328	52	616	224	0.2	1.7	0.7	368	404	378
8	110	453	66	784	286	0.1	1.6	0.6	509	558	522
6	125	316	42	505	184	0.1	1.4	0.6	412	452	423
7	125	456	59	700	255	0.1	1.4	0.5	595	652	610
8	125	631	75	891	325	0.1	1.3	0.5	823	903	844

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
2113		**RCC With Recycling**									
6	90	71	32	381	139	0.4	4.8	1.9	65	72	67
7	90	102	44	525	191	0.4	4.6	1.8	94	103	96
8	90	142	57	673	245	0.4	4.2	1.7	131	143	134
6	100	90	35	418	152	0.4	4.2	1.6	92	100	94
7	100	130	48	574	209	0.4	4.0	1.5	132	145	136
8	100	180	62	734	267	0.3	3.7	1.4	183	201	188
6	110	113	37	444	162	0.3	3.5	1.4	127	139	130
7	110	164	52	616	224	0.3	3.4	1.3	184	202	189
8	110	226	66	784	286	0.3	3.1	1.2	254	278	260
6	125	158	42	505	184	0.3	2.9	1.1	206	226	211
7	125	228	59	700	255	0.3	2.8	1.1	297	326	305
8	125	316	75	891	325	0.2	2.5	1.0	412	452	423

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2121	**RCC With Recycling**								
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	330	44	525	191	0.1	1.4	0.6	304	333	312
8	90	461	57	673	245	0.1	1.3	0.5	424	465	435
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	420	48	574	209	0.1	1.2	0.5	427	468	438
8	100	585	62	734	267	0.1	1.1	0.4	595	652	610
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
7	110	529	52	616	224	0.1	1.0	0.4	594	652	610
8	110	736	66	784	286	0.1	1.0	0.4	827	907	848
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	125	737	59	700	255	0.1	0.9	0.3	961	1054	986
8	125	1026	75	891	325	0.1	0.8	0.3	1338	1468	1373

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Tables 2121

Hard Coating | **Low Profile Range** | **SSPC-SP 10**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2122	**RCC With Recycling**								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	220	44	525	191	0.2	2.1	0.8	202	222	208
8	90	307	57	673	245	0.2	2.0	0.8	283	310	290
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	280	48	574	209	0.2	1.8	0.7	285	312	292
8	100	390	62	734	267	0.2	1.7	0.7	397	435	407
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	353	52	616	224	0.1	1.6	0.6	396	435	407
8	110	491	66	784	286	0.1	1.4	0.6	551	605	566
6	125	351	42	505	184	0.1	1.3	0.5	458	502	470
7	125	491	59	700	255	0.1	1.3	0.5	640	702	657
8	125	684	75	891	325	0.1	1.2	0.5	892	978	915

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 10**

Tables 2122

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2123	**RCC With Recycling**								
6	90	79	32	381	139	0.4	4.3	1.7	73	80	75
7	90	110	44	525	191	0.4	4.3	1.7	101	111	104
8	90	154	57	673	245	0.4	3.9	1.5	142	156	145
6	100	100	35	418	152	0.3	3.7	1.5	102	112	104
7	100	140	48	574	209	0.3	3.7	1.4	142	156	146
8	100	195	62	734	267	0.3	3.4	1.3	198	217	203
6	110	126	37	444	162	0.3	3.2	1.2	142	155	145
7	110	176	52	616	224	0.3	3.1	1.2	198	217	203
8	110	245	66	784	286	0.3	2.9	1.1	275	302	282
6	125	176	42	505	184	0.2	2.6	1.0	229	252	236
7	125	246	59	700	255	0.2	2.6	1.0	321	352	329
8	125	342	75	891	325	0.2	2.3	0.9	446	489	458

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | **High Profile Range** | **SSPC-SP 10**

Tables 2123

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2131	**RCC With Recycling**								
6	90	473	32	381	139	0.1	0.7	0.3	435	478	447
7	90	709	44	525	191	0.1	0.7	0.3	653	716	670
8	90	945	57	673	245	0.1	0.6	0.2	870	954	893
6	100	600	35	418	152	0.1	0.6	0.2	610	669	626
7	100	900	48	574	209	0.1	0.6	0.2	915	1004	939
8	100	1200	62	734	267	0.1	0.5	0.2	1220	1338	1252
6	110	755	37	444	162	0.0	0.5	0.2	848	930	870
7	110	1132	52	616	224	0.0	0.5	0.2	1271	1395	1305
8	110	1510	66	784	286	0.0	0.5	0.2	1696	1860	1741
6	125	1051	42	505	184	0.0	0.4	0.2	1370	1503	1406
7	125	1578	59	700	255	0.0	0.4	0.2	2057	2257	2112
8	125	2104	75	891	325	0.0	0.4	0.1	2743	3010	2816

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2132	**RCC With Recycling**								
6	90	315	32	381	139	0.1	1.1	0.4	290	318	298
7	90	473	44	525	191	0.1	1.0	0.4	435	478	447
8	90	630	57	673	245	0.1	1.0	0.4	580	636	595
6	100	400	35	418	152	0.1	0.9	0.4	407	446	417
7	100	600	48	574	209	0.1	0.9	0.3	610	669	626
8	100	800	62	734	267	0.1	0.8	0.3	813	892	835
6	110	503	37	444	162	0.1	0.8	0.3	565	620	580
7	110	755	52	616	224	0.1	0.7	0.3	848	930	870
8	110	1007	66	784	286	0.1	0.7	0.3	1131	1241	1161
6	125	701	42	505	184	0.1	0.6	0.3	914	1003	938
7	125	1052	59	700	255	0.1	0.6	0.2	1372	1505	1408
8	125	1403	75	891	325	0.1	0.6	0.2	1829	2007	1877

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 6**

Tables 2132

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2133	**RCC With Recycling**								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	236	44	525	191	0.2	2.0	0.8	217	238	223
8	90	315	57	673	245	0.2	1.9	0.7	290	318	298
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	300	48	574	209	0.2	1.7	0.7	305	335	313
8	100	400	62	734	267	0.2	1.6	0.6	407	446	417
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	377	52	616	224	0.1	1.5	0.6	423	464	435
8	110	503	66	784	286	0.1	1.4	0.5	565	620	580
6	125	350	42	505	184	0.1	1.3	0.5	456	501	468
7	125	526	59	700	255	0.1	1.2	0.5	686	752	704
8	125	701	75	891	325	0.1	1.1	0.4	914	1003	938

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2141 RCC With Recycling									
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2211	**RCC With Recycling**								
6	90	319	32	381	139	0.1	1.1	0.4	294	322	301
7	90	460	44	525	191	0.1	1.0	0.4	423	464	435
8	90	638	57	673	245	0.1	0.9	0.4	587	644	603
6	100	405	35	418	152	0.1	0.9	0.4	412	452	423
7	100	585	48	574	209	0.1	0.9	0.3	595	653	610
8	100	810	62	734	267	0.1	0.8	0.3	824	903	845
6	110	509	37	444	162	0.1	0.8	0.3	572	627	587
7	110	737	52	616	224	0.1	0.7	0.3	828	908	850
8	110	1019	66	784	286	0.1	0.7	0.3	1144	1255	1175
6	125	710	42	505	184	0.1	0.6	0.2	926	1016	950
7	125	1026	59	700	255	0.1	0.6	0.2	1338	1468	1373
8	125	1421	75	891	325	0.1	0.6	0.2	1853	2033	1902

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
2212 RCC With Recycling											
6	90	213	32	381	139	0.1	1.6	0.6	196	215	201
7	90	307	44	525	191	0.1	1.5	0.6	283	310	290
8	90	426	57	673	245	0.1	1.4	0.6	392	430	402
6	100	270	35	418	152	0.1	1.4	0.5	275	301	282
7	100	390	48	574	209	0.1	1.3	0.5	397	435	407
8	100	540	62	734	267	0.1	1.2	0.5	549	602	563
6	110	340	37	444	162	0.1	1.2	0.5	382	419	392
7	110	491	52	616	224	0.1	1.1	0.4	551	605	566
8	110	679	66	784	286	0.1	1.0	0.4	763	837	783
6	125	474	42	505	184	0.1	1.0	0.4	618	678	634
7	125	684	59	700	255	0.1	0.9	0.4	892	978	915
8	125	947	75	891	325	0.1	0.8	0.3	1235	1355	1267

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2213	RCC With Recycling								
6	90	106	32	381	139	0.3	3.2	1.3	98	107	100
7	90	153	44	525	191	0.3	3.1	1.2	141	154	145
8	90	213	57	673	245	0.3	2.8	1.1	196	215	201
6	100	135	35	418	152	0.3	2.8	1.1	137	151	141
7	100	195	48	574	209	0.2	2.6	1.0	198	218	203
8	100	270	62	734	267	0.2	2.4	0.9	275	301	282
6	110	170	37	444	162	0.2	2.3	0.9	191	209	196
7	110	246	52	616	224	0.2	2.2	0.9	276	303	284
8	110	340	66	784	286	0.2	2.1	0.8	382	419	392
6	125	237	42	505	184	0.2	1.9	0.7	309	339	317
7	125	342	59	700	255	0.2	1.8	0.7	446	489	458
8	125	474	75	891	325	0.2	1.7	0.7	618	678	634

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2221	**RCC With Recycling**								
6	90	354	32	381	139	0.1	1.0	0.4	326	357	334
7	90	495	44	525	191	0.1	1.0	0.4	456	500	468
8	90	691	57	673	245	0.1	0.9	0.3	636	698	653
6	100	450	35	418	152	0.1	0.8	0.3	458	502	470
7	100	630	48	574	209	0.1	0.8	0.3	641	703	657
8	100	878	62	734	267	0.1	0.7	0.3	893	979	916
6	110	566	37	444	162	0.1	0.7	0.3	636	697	652
7	110	794	52	616	224	0.1	0.7	0.3	892	978	915
8	110	1104	66	784	286	0.1	0.6	0.2	1240	1360	1273
6	125	790	42	505	184	0.1	0.6	0.2	1030	1130	1057
7	125	1105	59	700	255	0.1	0.6	0.2	1441	1581	1479
8	125	1538	75	891	325	0.0	0.5	0.2	2005	2200	2058

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating **Low Profile Range** **SSPC-SP 10**

Tables 2221

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2222 RCC With Recycling									
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	330	44	525	191	0.1	1.4	0.6	304	333	312
8	90	461	57	673	245	0.1	1.3	0.5	424	465	435
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	420	48	574	209	0.1	1.2	0.5	427	468	438
8	100	585	62	734	267	0.1	1.1	0.4	595	652	610
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
7	110	529	52	616	224	0.1	1.0	0.4	594	652	610
8	110	736	66	784	286	0.1	1.0	0.4	827	907	848
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	125	737	59	700	255	0.1	0.9	0.3	961	1054	986
8	125	1026	75	891	325	0.1	0.8	0.3	1338	1468	1373

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2223	**RCC With Recycling**								
6	90	118	32	381	139	0.3	2.9	1.1	109	119	111
7	90	165	44	525	191	0.3	2.9	1.1	152	167	156
8	90	230	57	673	245	0.2	2.6	1.0	212	232	217
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
7	100	210	48	574	209	0.2	2.5	1.0	214	234	219
8	100	293	62	734	267	0.2	2.2	0.9	298	327	306
6	110	189	37	444	162	0.2	2.1	0.8	212	233	218
7	110	265	52	616	224	0.2	2.1	0.8	298	327	305
8	110	368	66	784	286	0.2	1.9	0.7	413	453	424
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	125	368	59	700	255	0.2	1.7	0.7	480	526	492
8	125	513	75	891	325	0.1	1.6	0.6	669	734	686

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale **Tables 2223**

Soft Coating | **High Profile Range** | **SSPC-SP 10**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2231	RCC With Recycling								
6	90	709	32	381	139	0.0	0.5	0.2	653	716	670
7	90	1063	44	525	191	0.0	0.4	0.2	978	1073	1004
8	90	1418	57	673	245	0.0	0.4	0.2	1305	1432	1340
6	100	900	35	418	152	0.0	0.4	0.2	915	1004	939
7	100	1350	48	574	209	0.0	0.4	0.1	1373	1506	1409
8	100	1800	62	734	267	0.0	0.4	0.1	1830	2008	1878
6	110	1132	37	444	162	0.0	0.4	0.1	1271	1395	1305
7	110	1699	52	616	224	0.0	0.3	0.1	1908	2093	1958
8	110	2265	66	784	286	0.0	0.3	0.1	2544	2791	2611
6	125	1577	42	505	184	0.0	0.3	0.1	2056	2256	2110
7	125	2367	59	700	255	0.0	0.3	0.1	3086	3386	3167
8	125	3156	75	891	325	0.0	0.3	0.1	4115	4514	4223

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 6**

Tables 2231

RCC, RCP and PR

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2232	**RCC With Recycling**								
6	90	473	32	381	139	0.1	0.7	0.3	435	478	447
7	90	709	44	525	191	0.1	0.7	0.3	653	716	670
8	90	945	57	673	245	0.1	0.6	0.2	870	954	893
6	100	600	35	418	152	0.1	0.6	0.2	610	669	626
7	100	900	48	574	209	0.1	0.6	0.2	915	1004	939
8	100	1200	62	734	267	0.1	0.5	0.2	1220	1338	1252
6	110	755	37	444	162	0.0	0.5	0.2	848	930	870
7	110	1132	52	616	224	0.0	0.5	0.2	1271	1395	1305
8	110	1510	66	784	286	0.0	0.5	0.2	1696	1860	1741
6	125	1051	42	505	184	0.0	0.4	0.2	1370	1503	1406
7	125	1578	59	700	255	0.0	0.4	0.2	2057	2257	2112
8	125	2104	75	891	325	0.0	0.4	0.1	2743	3010	2816

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2233	RCC With Recycling								
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	354	44	525	191	0.1	1.3	0.5	326	357	334
8	90	473	57	673	245	0.1	1.3	0.5	435	478	447
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	450	48	574	209	0.1	1.1	0.4	458	502	470
8	100	600	62	734	267	0.1	1.1	0.4	610	669	626
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
7	110	566	52	616	224	0.1	1.0	0.4	636	697	652
8	110	755	66	784	286	0.1	0.9	0.4	848	930	870
6	125	526	42	505	184	0.1	0.9	0.3	686	752	704
7	125	789	59	700	255	0.1	0.8	0.3	1029	1129	1056
8	125	1052	75	891	325	0.1	0.8	0.3	1372	1505	1408

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale **Tables 2233**

Soft Coating **High Profile Range** **SSPC-SP 6**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2241	RCC With Recycling								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Tables 2241

Soft Coating | **Low Profile Range** | **SSPC-SP 7**

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2311 RCC With Recycling									
6	90	213	32	381	139	0.1	1.6	0.6	196	215	201
7	90	307	44	525	191	0.1	1.5	0.6	283	310	290
8	90	426	57	673	245	0.1	1.4	0.6	392	430	402
6	100	270	35	418	152	0.1	1.4	0.5	275	301	282
7	100	390	48	574	209	0.1	1.3	0.5	397	435	407
8	100	540	62	734	267	0.1	1.2	0.5	549	602	563
6	110	340	37	444	162	0.1	1.2	0.5	382	419	392
7	110	491	52	616	224	0.1	1.1	0.4	551	605	566
8	110	679	66	784	286	0.1	1.0	0.4	763	837	783
6	125	474	42	505	184	0.1	1.0	0.4	618	678	634
7	125	684	59	700	255	0.1	0.9	0.4	892	978	915
8	125	947	75	891	325	0.1	0.8	0.3	1235	1355	1267

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel **Low Profile Range** **SSPC-SP 5**

Tables 2311

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
2311 RCC With Recycling											
6	90	213	32	381	139	0.1	1.6	0.6	196	215	201
7	90	307	44	525	191	0.1	1.5	0.6	283	310	290
8	90	426	57	673	245	0.1	1.4	0.6	392	430	402
6	100	270	35	418	152	0.1	1.4	0.5	275	301	282
7	100	390	48	574	209	0.1	1.3	0.5	397	435	407
8	100	540	62	734	267	0.1	1.2	0.5	549	602	563
6	110	340	37	444	162	0.1	1.2	0.5	382	419	392
7	110	491	52	616	224	0.1	1.1	0.4	551	605	566
8	110	679	66	784	286	0.1	1.0	0.4	763	837	783
6	125	474	42	505	184	0.1	1.0	0.4	618	678	634
7	125	684	59	700	255	0.1	0.9	0.4	892	978	915
8	125	947	75	891	325	0.1	0.8	0.3	1235	1355	1267

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 5**

Tables 2311

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
2312 RCC With Recycling											
6	90	142	32	381	139	0.2	2.4	0.9	131	143	134
7	90	204	44	525	191	0.2	2.3	0.9	188	206	193
8	90	284	57	673	245	0.2	2.1	0.8	261	287	268
6	100	180	35	418	152	0.2	2.1	0.8	183	201	188
7	100	260	48	574	209	0.2	2.0	0.8	264	290	271
8	100	360	62	734	267	0.2	1.8	0.7	366	402	376
6	110	226	37	444	162	0.2	1.8	0.7	254	278	260
7	110	328	52	616	224	0.2	1.7	0.7	368	404	378
8	110	453	66	784	286	0.1	1.6	0.6	509	558	522
6	125	316	42	505	184	0.1	1.4	0.6	412	452	423
7	125	456	59	700	255	0.1	1.4	0.5	595	652	610
8	125	631	75	891	325	0.1	1.3	0.5	823	903	844

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5**

Tables 2312

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2312	RCC With Recycling								
6	90	142	32	381	139	0.2	2.4	0.9	131	143	134
7	90	204	44	525	191	0.2	2.3	0.9	188	206	193
8	90	284	57	673	245	0.2	2.1	0.8	261	287	268
6	100	180	35	418	152	0.2	2.1	0.8	183	201	188
7	100	260	48	574	209	0.2	2.0	0.8	264	290	271
8	100	360	62	734	267	0.2	1.8	0.7	366	402	376
6	110	226	37	444	162	0.2	1.8	0.7	254	278	260
7	110	328	52	616	224	0.2	1.7	0.7	368	404	378
8	110	453	66	784	286	0.1	1.6	0.6	509	558	522
6	125	316	42	505	184	0.1	1.4	0.6	412	452	423
7	125	456	59	700	255	0.1	1.4	0.5	595	652	610
8	125	631	75	891	325	0.1	1.3	0.5	823	903	844

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5**

Tables 2312

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2313	RCC With Recycling								
6	90	71	32	381	139	0.4	4.8	1.9	65	72	67
7	90	102	44	525	191	0.4	4.6	1.8	94	103	96
8	90	142	57	673	245	0.4	4.2	1.7	131	143	134
6	100	90	35	418	152	0.4	4.2	1.6	92	100	94
7	100	130	48	574	209	0.4	4.0	1.5	132	145	136
8	100	180	62	734	267	0.3	3.7	1.4	183	201	188
6	110	113	37	444	162	0.3	3.5	1.4	127	139	130
7	110	164	52	616	224	0.3	3.4	1.3	184	202	189
8	110	226	66	784	286	0.3	3.1	1.2	254	278	260
6	125	158	42	505	184	0.3	2.9	1.1	206	226	211
7	125	228	59	700	255	0.3	2.8	1.1	297	326	305
8	125	316	75	891	325	0.2	2.5	1.0	412	452	423

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2313	RCC With Recycling								
6	90	71	32	381	139	0.4	4.8	1.9	65	72	67
7	90	102	44	525	191	0.4	4.6	1.8	94	103	96
8	90	142	57	673	245	0.4	4.2	1.7	131	143	134
6	100	90	35	418	152	0.4	4.2	1.6	92	100	94
7	100	130	48	574	209	0.4	4.0	1.5	132	145	136
8	100	180	62	734	267	0.3	3.7	1.4	183	201	188
6	110	113	37	444	162	0.3	3.5	1.4	127	139	130
7	110	164	52	616	224	0.3	3.4	1.3	184	202	189
8	110	226	66	784	286	0.3	3.1	1.2	254	278	260
6	125	158	42	505	184	0.3	2.9	1.1	206	226	211
7	125	228	59	700	255	0.3	2.8	1.1	297	326	305
8	125	316	75	891	325	0.2	2.5	1.0	412	452	423

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2321 RCC With Recycling									
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	330	44	525	191	0.1	1.4	0.6	304	333	312
8	90	461	57	673	245	0.1	1.3	0.5	424	465	435
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	420	48	574	209	0.1	1.2	0.5	427	468	438
8	100	585	62	734	267	0.1	1.1	0.4	595	652	610
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
7	110	529	52	616	224	0.1	1.0	0.4	594	652	610
8	110	736	66	784	286	0.1	1.0	0.4	827	907	848
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	125	737	59	700	255	0.1	0.9	0.3	961	1054	986
8	125	1026	75	891	325	0.1	0.8	0.3	1338	1468	1373

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale **Tables 2321**

New Steel **Low Profile Range** **SSPC-SP 10** **RCC, RCP and PR**

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2321 RCC With Recycling									
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	330	44	525	191	0.1	1.4	0.6	304	333	312
8	90	461	57	673	245	0.1	1.3	0.5	424	465	435
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	420	48	574	209	0.1	1.2	0.5	427	468	438
8	100	585	62	734	267	0.1	1.1	0.4	595	652	610
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
7	110	529	52	616	224	0.1	1.0	0.4	594	652	610
8	110	736	66	784	286	0.1	1.0	0.4	827	907	848
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	125	737	59	700	255	0.1	0.9	0.3	961	1054	986
8	125	1026	75	891	325	0.1	0.8	0.3	1338	1468	1373

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2322	**RCC With Recycling**								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	220	44	525	191	0.2	2.1	0.8	202	222	208
8	90	307	57	673	245	0.2	2.0	0.8	283	310	290
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	280	48	574	209	0.2	1.8	0.7	285	312	292
8	100	390	62	734	267	0.2	1.7	0.7	397	435	407
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	353	52	616	224	0.1	1.6	0.6	396	435	407
8	110	491	66	784	286	0.1	1.4	0.6	551	605	566
6	125	351	42	505	184	0.1	1.3	0.5	458	502	470
7	125	491	59	700	255	0.1	1.3	0.5	640	702	657
8	125	684	75	891	325	0.1	1.2	0.5	892	978	915

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10**

Tables 2322

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2322	**RCC With Recycling**								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	220	44	525	191	0.2	2.1	0.8	202	222	208
8	90	307	57	673	245	0.2	2.0	0.8	283	310	290
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	280	48	574	209	0.2	1.8	0.7	285	312	292
8	100	390	62	734	267	0.2	1.7	0.7	397	435	407
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	353	52	616	224	0.1	1.6	0.6	396	435	407
8	110	491	66	784	286	0.1	1.4	0.6	551	605	566
6	125	351	42	505	184	0.1	1.3	0.5	458	502	470
7	125	491	59	700	255	0.1	1.3	0.5	640	702	657
8	125	684	75	891	325	0.1	1.2	0.5	892	978	915

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2323	RCC	With Recycling							
6	90	79	32	381	139	0.4	4.3	1.7	73	80	75
7	90	110	44	525	191	0.4	4.3	1.7	101	111	104
8	90	154	57	673	245	0.4	3.9	1.5	142	156	145
6	100	100	35	418	152	0.3	3.7	1.5	102	112	104
7	100	140	48	574	209	0.3	3.7	1.4	142	156	146
8	100	195	62	734	267	0.3	3.4	1.3	198	217	203
6	110	126	37	444	162	0.3	3.2	1.2	142	155	145
7	110	176	52	616	224	0.3	3.1	1.2	198	217	203
8	110	245	66	784	286	0.3	2.9	1.1	275	302	282
6	125	176	42	505	184	0.2	2.6	1.0	229	252	236
7	125	246	59	700	255	0.2	2.6	1.0	321	352	329
8	125	342	75	891	325	0.2	2.3	0.9	446	489	458

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10**

Tables 2323

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2323 RCC With Recycling									
6	90	79	32	381	139	0.4	4.3	1.7	73	80	75
7	90	110	44	525	191	0.4	4.3	1.7	101	111	104
8	90	154	57	673	245	0.4	3.9	1.5	142	156	145
6	100	100	35	418	152	0.3	3.7	1.5	102	112	104
7	100	140	48	574	209	0.3	3.7	1.4	142	156	146
8	100	195	62	734	267	0.3	3.4	1.3	198	217	203
6	110	126	37	444	162	0.3	3.2	1.2	142	155	145
7	110	176	52	616	224	0.3	3.1	1.2	198	217	203
8	110	245	66	784	286	0.3	2.9	1.1	275	302	282
6	125	176	42	505	184	0.2	2.6	1.0	229	252	236
7	125	246	59	700	255	0.2	2.6	1.0	321	352	329
8	125	342	75	891	325	0.2	2.3	0.9	446	489	458

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale **Tables 2323**

New Steel **High Profile Range** **SSPC-SP 10**

RCC, RCP and PR

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2331 RCC With Recycling									
6	90	473	32	381	139	0.1	0.7	0.3	435	478	447
7	90	709	44	525	191	0.1	0.7	0.3	653	716	670
8	90	945	57	673	245	0.1	0.6	0.2	870	954	893
6	100	600	35	418	152	0.1	0.6	0.2	610	669	626
7	100	900	48	574	209	0.1	0.6	0.2	915	1004	939
8	100	1200	62	734	267	0.1	0.5	0.2	1220	1338	1252
6	110	755	37	444	162	0.0	0.5	0.2	848	930	870
7	110	1132	52	616	224	0.0	0.5	0.2	1271	1395	1305
8	110	1510	66	784	286	0.0	0.5	0.2	1696	1860	1741
6	125	1051	42	505	184	0.0	0.4	0.2	1370	1503	1406
7	125	1578	59	700	255	0.0	0.4	0.2	2057	2257	2112
8	125	2104	75	891	325	0.0	0.4	0.1	2743	3010	2816

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale | **Tables 2331**

New Steel | **Low Profile Range** | **SSPC-SP 6** | **RCC, RCP and PR**

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2331	**RCC With Recycling**								
6	90	473	32	381	139	0.1	0.7	0.3	435	478	447
7	90	709	44	525	191	0.1	0.7	0.3	653	716	670
8	90	945	57	673	245	0.1	0.6	0.2	870	954	893
6	100	600	35	418	152	0.1	0.6	0.2	610	669	626
7	100	900	48	574	209	0.1	0.6	0.2	915	1004	939
8	100	1200	62	734	267	0.1	0.5	0.2	1220	1338	1252
6	110	755	37	444	162	0.0	0.5	0.2	848	930	870
7	110	1132	52	616	224	0.0	0.5	0.2	1271	1395	1305
8	110	1510	66	784	286	0.0	0.5	0.2	1696	1860	1741
6	125	1051	42	505	184	0.0	0.4	0.2	1370	1503	1406
7	125	1578	59	700	255	0.0	0.4	0.2	2057	2257	2112
8	125	2104	75	891	325	0.0	0.4	0.1	2743	3010	2816

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6**

Tables 2331

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2332	RCC With Recycling								
6	90	315	32	381	139	0.1	1.1	0.4	290	318	298
7	90	473	44	525	191	0.1	1.0	0.4	435	478	447
8	90	630	57	673	245	0.1	1.0	0.4	580	636	595
6	100	400	35	418	152	0.1	0.9	0.4	407	446	417
7	100	600	48	574	209	0.1	0.9	0.3	610	669	626
8	100	800	62	734	267	0.1	0.8	0.3	813	892	835
6	110	503	37	444	162	0.1	0.8	0.3	565	620	580
7	110	755	52	616	224	0.1	0.7	0.3	848	930	870
8	110	1007	66	784	286	0.1	0.7	0.3	1131	1241	1161
6	125	701	42	505	184	0.1	0.6	0.3	914	1003	938
7	125	1052	59	700	255	0.1	0.6	0.2	1372	1505	1408
8	125	1403	75	891	325	0.1	0.6	0.2	1829	2007	1877

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel **Medium Profile Range** **SSPC-SP 6**

Tables 2332

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2332	**RCC With Recycling**								
6	90	315	32	381	139	0.1	1.1	0.4	290	318	298
7	90	473	44	525	191	0.1	1.0	0.4	435	478	447
8	90	630	57	673	245	0.1	1.0	0.4	580	636	595
6	100	400	35	418	152	0.1	0.9	0.4	407	446	417
7	100	600	48	574	209	0.1	0.9	0.3	610	669	626
8	100	800	62	734	267	0.1	0.8	0.3	813	892	835
6	110	503	37	444	162	0.1	0.8	0.3	565	620	580
7	110	755	52	616	224	0.1	0.7	0.3	848	930	870
8	110	1007	66	784	286	0.1	0.7	0.3	1131	1241	1161
6	125	701	42	505	184	0.1	0.6	0.3	914	1003	938
7	125	1052	59	700	255	0.1	0.6	0.2	1372	1505	1408
8	125	1403	75	891	325	0.1	0.6	0.2	1829	2007	1877

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel **Medium Profile Range** **SSPC-SP 6**

Tables 2332

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2333	RCC	With Recycling							
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	236	44	525	191	0.2	2.0	0.8	217	238	223
8	90	315	57	673	245	0.2	1.9	0.7	290	318	298
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	300	48	574	209	0.2	1.7	0.7	305	335	313
8	100	400	62	734	267	0.2	1.6	0.6	407	446	417
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	377	52	616	224	0.1	1.5	0.6	423	464	435
8	110	503	66	784	286	0.1	1.4	0.5	565	620	580
6	125	350	42	505	184	0.1	1.3	0.5	456	501	468
7	125	526	59	700	255	0.1	1.2	0.5	686	752	704
8	125	701	75	891	325	0.1	1.1	0.4	914	1003	938

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6**

Tables 2333

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2333	RCC With Recycling								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
7	90	236	44	525	191	0.2	2.0	0.8	217	238	223
8	90	315	57	673	245	0.2	1.9	0.7	290	318	298
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
7	100	300	48	574	209	0.2	1.7	0.7	305	335	313
8	100	400	62	734	267	0.2	1.6	0.6	407	446	417
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
7	110	377	52	616	224	0.1	1.5	0.6	423	464	435
8	110	503	66	784	286	0.1	1.4	0.5	565	620	580
6	125	350	42	505	184	0.1	1.3	0.5	456	501	468
7	125	526	59	700	255	0.1	1.2	0.5	686	752	704
8	125	701	75	891	325	0.1	1.1	0.4	914	1003	938

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Tables 2333

New Steel | **High Profile Range** | **SSPC-SP 6**

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2341 RCC With Recycling									
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		2341	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale **Tables 2341**

New Steel **Low Profile Range** **SSPC-SP 7** **RCC, RCP and PR**

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3111 RCC With Recycling									
6	90	154	32	381	139	0.2	2.2	0.9	142	156	145
7	90	225	44	525	191	0.2	2.1	0.8	207	227	213
8	90	307	57	673	245	0.2	2.0	0.8	283	310	290
6	100	195	35	418	152	0.2	1.9	0.7	198	218	203
7	100	285	48	574	209	0.2	1.8	0.7	290	318	297
8	100	390	62	734	267	0.2	1.7	0.7	397	435	407
6	110	245	37	444	162	0.2	1.6	0.6	275	302	282
7	110	359	52	616	224	0.1	1.5	0.6	403	442	414
8	110	491	66	784	286	0.1	1.4	0.6	551	605	566
6	125	342	42	505	184	0.1	1.3	0.5	446	489	458
7	125	499	59	700	255	0.1	1.3	0.5	651	714	668
8	125	684	75	891	325	0.1	1.2	0.5	892	978	915

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
3112 RCC With Recycling											
6	90	103	32	381	139	0.3	3.3	1.3	95	104	97
7	90	150	44	525	191	0.3	3.1	1.2	138	151	142
8	90	204	57	673	245	0.3	3.0	1.2	188	206	193
6	100	130	35	418	152	0.3	2.9	1.1	132	145	136
7	100	190	48	574	209	0.3	2.7	1.1	193	212	198
8	100	260	62	734	267	0.2	2.5	1.0	264	290	271
6	110	163	37	444	162	0.2	2.4	1.0	183	201	188
7	110	239	52	616	224	0.2	2.3	0.9	268	294	275
8	110	328	66	784	286	0.2	2.1	0.8	368	404	378
6	125	228	42	505	184	0.2	2.0	0.8	297	326	305
7	125	333	59	700	255	0.2	1.9	0.7	434	476	446
8	125	456	75	891	325	0.2	1.8	0.7	595	652	610

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3113	**RCC**	**With Recycling**							
6	90	51	32	381	139	0.6	6.7	2.6	47	51	48
7	90	75	44	525	191	0.6	6.3	2.4	69	76	71
8	90	102	57	673	245	0.5	5.9	2.3	94	103	96
6	100	65	35	418	152	0.5	5.8	2.2	66	73	68
7	100	95	48	574	209	0.5	5.4	2.1	97	106	99
8	100	130	62	734	267	0.5	5.1	2.0	132	145	136
6	110	82	37	444	162	0.4	4.9	1.9	92	101	95
7	110	120	52	616	224	0.4	4.6	1.8	135	148	138
8	110	164	66	784	286	0.4	4.3	1.7	184	202	189
6	125	114	42	505	184	0.4	4.0	1.5	149	163	153
7	125	166	59	700	255	0.3	3.8	1.5	216	237	222
8	125	228	75	891	325	0.3	3.5	1.4	297	326	305

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
3121 RCC With Recycling											
6	90	178	32	381	139	0.2	1.9	0.7	164	180	168
7	90	248	44	525	191	0.2	1.9	0.7	228	250	234
8	90	342	57	673	245	0.2	1.8	0.7	315	345	323
6	100	225	35	418	152	0.2	1.7	0.6	229	251	235
7	100	315	48	574	209	0.2	1.6	0.6	320	351	329
8	100	435	62	734	267	0.1	1.5	0.6	442	485	454
6	110	283	37	444	162	0.1	1.4	0.5	318	349	326
7	110	396	52	616	224	0.1	1.4	0.5	445	488	456
8	110	548	66	784	286	0.1	1.3	0.5	615	675	632
6	125	395	42	505	184	0.1	1.1	0.4	515	565	529
7	125	552	59	700	255	0.1	1.1	0.4	720	790	739
8	125	762	75	891	325	0.1	1.0	0.4	994	1090	1020

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3121

Hard Coating | **Low Profile Range** | **SSPC-SP 10**

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3122	**RCC With Recycling**								
6	90	118	32	381	139	0.3	2.9	1.1	109	119	111
7	90	165	44	525	191	0.3	2.9	1.1	152	167	156
8	90	228	57	673	245	0.2	2.6	1.0	210	230	215
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
7	100	210	48	574	209	0.2	2.5	1.0	214	234	219
8	100	290	62	734	267	0.2	2.3	0.9	295	323	303
6	110	188	37	444	162	0.2	2.1	0.8	211	232	217
7	110	264	52	616	224	0.2	2.1	0.8	296	325	304
8	110	365	66	784	286	0.2	1.9	0.7	410	450	421
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	125	368	59	700	255	0.2	1.7	0.7	480	526	492
8	125	508	75	891	325	0.1	1.6	0.6	662	727	680

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3123 RCC With Recycling									
6	90	59	32	381	139	0.5	5.8	2.3	54	60	56
7	90	83	44	525	191	0.5	5.7	2.2	76	84	78
8	90	114	57	673	245	0.5	5.3	2.1	105	115	108
6	100	75	35	418	152	0.5	5.0	1.9	76	84	78
7	100	105	48	574	209	0.5	4.9	1.9	107	117	110
8	100	145	62	734	267	0.4	4.5	1.8	147	162	151
6	110	94	37	444	162	0.4	4.2	1.6	106	116	108
7	110	132	52	616	224	0.4	4.2	1.6	148	163	152
8	110	183	66	784	286	0.4	3.8	1.5	206	225	211
6	125	132	42	505	184	0.3	3.4	1.3	172	189	177
7	125	184	59	700	255	0.3	3.4	1.3	240	263	246
8	125	254	75	891	325	0.3	3.1	1.2	331	363	340

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3131 RCC With Recycling									
6	90	354	32	381	139	0.1	1.0	0.4	326	357	334
7	90	531	44	525	191	0.1	0.9	0.3	489	536	502
8	90	709	57	673	245	0.1	0.9	0.3	653	716	670
6	100	450	35	418	152	0.1	0.8	0.3	458	502	470
7	100	675	48	574	209	0.1	0.8	0.3	686	753	704
8	100	900	62	734	267	0.1	0.7	0.3	915	1004	939
6	110	567	37	444	162	0.1	0.7	0.3	637	699	654
7	110	850	52	616	224	0.1	0.6	0.3	955	1047	980
8	110	1132	66	784	286	0.1	0.6	0.2	1271	1395	1305
6	125	788	42	505	184	0.1	0.6	0.2	1027	1127	1054
7	125	1183	59	700	255	0.0	0.5	0.2	1542	1692	1583
8	125	1578	75	891	325	0.0	0.5	0.2	2057	2257	2112

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
3132		**RCC With Recycling**									
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
7	90	354	44	525	191	0.1	1.3	0.5	326	357	334
8	90	473	57	673	245	0.1	1.3	0.5	435	478	447
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
7	100	450	48	574	209	0.1	1.1	0.4	458	502	470
8	100	600	62	734	267	0.1	1.1	0.4	610	669	626
6	110	378	37	444	162	0.1	1.1	0.4	425	466	436
7	110	567	52	616	224	0.1	1.0	0.4	637	699	654
8	110	755	66	784	286	0.1	0.9	0.4	848	930	870
6	125	525	42	505	184	0.1	0.9	0.3	684	751	703
7	125	789	59	700	255	0.1	0.8	0.3	1029	1129	1056
8	125	1052	75	891	325	0.1	0.8	0.3	1372	1505	1408

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3133 RCC With Recycling									
6	90	118	32	381	139	0.3	2.9	1.1	109	119	111
7	90	177	44	525	191	0.2	2.7	1.0	163	179	167
8	90	236	57	673	245	0.2	2.6	1.0	217	238	223
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
7	100	225	48	574	209	0.2	2.3	0.9	229	251	235
8	100	300	62	734	267	0.2	2.2	0.9	305	335	313
6	110	189	37	444	162	0.2	2.1	0.8	212	233	218
7	110	283	52	616	224	0.2	2.0	0.8	318	349	326
8	110	377	66	784	286	0.2	1.9	0.7	423	464	435
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	125	394	59	700	255	0.1	1.6	0.6	514	564	527
8	125	526	75	891	325	0.1	1.5	0.6	686	752	704

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3141	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3141

Hard Coating | **Low Profile Range** | **SSPC-SP 7**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
3211 RCC With Recycling											
6	90	231	32	381	139	0.1	1.5	0.6	213	233	218
7	90	337	44	525	191	0.1	1.4	0.5	310	340	318
8	90	460	57	673	245	0.1	1.3	0.5	423	464	435
6	100	293	35	418	152	0.1	1.3	0.5	298	327	306
7	100	428	48	574	209	0.1	1.2	0.5	435	477	447
8	100	585	62	734	267	0.1	1.1	0.4	595	652	610
6	110	367	37	444	162	0.1	1.1	0.4	412	452	423
7	110	538	52	616	224	0.1	1.0	0.4	604	663	620
8	110	737	66	784	286	0.1	1.0	0.4	828	908	850
6	125	513	42	505	184	0.1	0.9	0.3	669	734	686
7	125	749	59	700	255	0.1	0.8	0.3	977	1071	1002
8	125	1026	75	891	325	0.1	0.8	0.3	1338	1468	1373

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
3212 RCC With Recycling											
6	90	154	32	381	139	0.2	2.2	0.9	142	156	145
7	90	225	44	525	191	0.2	2.1	0.8	207	227	213
8	90	307	57	673	245	0.2	2.0	0.8	283	310	290
6	100	195	35	418	152	0.2	1.9	0.7	198	218	203
7	100	285	48	574	209	0.2	1.8	0.7	290	318	297
8	100	390	62	734	267	0.2	1.7	0.7	397	435	407
6	110	245	37	444	162	0.2	1.6	0.6	275	302	282
7	110	359	52	616	224	0.1	1.5	0.6	403	442	414
8	110	491	66	784	286	0.1	1.4	0.6	551	605	566
6	125	342	42	505	184	0.1	1.3	0.5	446	489	458
7	125	499	59	700	255	0.1	1.3	0.5	651	714	668
8	125	684	75	891	325	0.1	1.2	0.5	892	978	915

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3212

Soft Coating | **Medium Profile Range** | **SSPC-SP 5**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3213 RCC With Recycling									
6	90	77	32	381	139	0.4	4.4	1.7	71	78	73
7	90	112	44	525	191	0.4	4.2	1.6	103	113	106
8	90	153	57	673	245	0.4	3.9	1.5	141	154	145
6	100	98	35	418	152	0.4	3.8	1.5	100	109	102
7	100	143	48	574	209	0.3	3.6	1.4	145	160	149
8	100	195	62	734	267	0.3	3.4	1.3	198	217	203
6	110	122	37	444	162	0.3	3.3	1.3	137	150	141
7	110	179	52	616	224	0.3	3.1	1.2	201	221	206
8	110	246	66	784	286	0.3	2.9	1.1	276	303	284
6	125	171	42	505	184	0.2	2.6	1.0	223	245	229
7	125	250	59	700	255	0.2	2.5	1.0	326	358	335
8	125	342	75	891	325	0.2	2.3	0.9	446	489	458

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint **Tables 3213**

Soft Coating **High Profile Range** **SSPC-SP 5** **RCC, RCP and PR**

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3221 RCC With Recycling									
6	90	266	32	381	139	0.1	1.3	0.5	245	269	251
7	90	372	44	525	191	0.1	1.3	0.5	342	376	351
8	90	513	57	673	245	0.1	1.2	0.5	472	518	485
6	100	338	35	418	152	0.1	1.1	0.4	344	377	353
7	100	473	48	574	209	0.1	1.1	0.4	481	528	494
8	100	653	62	734	267	0.1	1.0	0.4	664	728	681
6	110	424	37	444	162	0.1	0.9	0.4	476	522	489
7	110	595	52	616	224	0.1	0.9	0.4	668	733	686
8	110	822	66	784	286	0.1	0.9	0.3	923	1013	947
6	125	592	42	505	184	0.1	0.8	0.3	772	847	792
7	125	828	59	700	255	0.1	0.8	0.3	1080	1184	1108
8	125	1143	75	891	325	0.1	0.7	0.3	1490	1635	1530

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3222	**RCC With Recycling**								
6	90	178	32	381	139	0.2	1.9	0.7	164	180	168
7	90	248	44	525	191	0.2	1.9	0.7	228	250	234
8	90	342	57	673	245	0.2	1.8	0.7	315	345	323
6	100	225	35	418	152	0.2	1.7	0.6	229	251	235
7	100	315	48	574	209	0.2	1.6	0.6	320	351	329
8	100	435	62	734	267	0.1	1.5	0.6	442	485	454
6	110	283	37	444	162	0.1	1.4	0.5	318	349	326
7	110	396	52	616	224	0.1	1.4	0.5	445	488	456
8	110	548	66	784	286	0.1	1.3	0.5	615	675	632
6	125	395	42	505	184	0.1	1.1	0.4	515	565	529
7	125	552	59	700	255	0.1	1.1	0.4	720	790	739
8	125	762	75	891	325	0.1	1.0	0.4	994	1090	1020

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3222

Soft Coating | **Medium Profile Range** | **SSPC-SP 10**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3223	RCC With Recycling								
6	90	89	32	381	139	0.4	3.8	1.5	82	90	84
7	90	124	44	525	191	0.4	3.8	1.5	114	125	117
8	90	171	57	673	245	0.3	3.5	1.4	157	173	162
6	100	113	35	418	152	0.3	3.3	1.3	115	126	118
7	100	158	48	574	209	0.3	3.3	1.3	161	176	165
8	100	218	62	734	267	0.3	3.0	1.2	222	243	227
6	110	141	37	444	162	0.3	2.8	1.1	158	174	163
7	110	198	52	616	224	0.3	2.8	1.1	222	244	228
8	110	274	66	784	286	0.2	2.6	1.0	308	338	316
6	125	197	42	505	184	0.2	2.3	0.9	257	282	264
7	125	276	59	700	255	0.2	2.3	0.9	360	395	369
8	125	381	75	891	325	0.2	2.1	0.8	497	545	510

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
3231 RCC With Recycling											
6	90	531	32	381	139	0.1	0.6	0.3	489	536	502
7	90	797	44	525	191	0.1	0.6	0.2	734	805	753
8	90	1063	57	673	245	0.1	0.6	0.2	978	1073	1004
6	100	675	35	418	152	0.1	0.6	0.2	686	753	704
7	100	1013	48	574	209	0.0	0.5	0.2	1030	1130	1057
8	100	1350	62	734	267	0.0	0.5	0.2	1373	1506	1409
6	110	851	37	444	162	0.0	0.5	0.2	956	1048	981
7	110	1275	52	616	224	0.0	0.4	0.2	1432	1571	1470
8	110	1699	66	784	286	0.0	0.4	0.2	1908	2093	1958
6	125	1182	42	505	184	0.0	0.4	0.1	1541	1691	1582
7	125	1774	59	700	255	0.0	0.4	0.1	2313	2538	2374
8	125	2367	75	891	325	0.0	0.3	0.1	3086	3386	3167

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3232 RCC With Recycling									
6	90	354	32	381	139	0.1	1.0	0.4	326	357	334
7	90	531	44	525	191	0.1	0.9	0.3	489	536	502
8	90	709	57	673	245	0.1	0.9	0.3	653	716	670
6	100	450	35	418	152	0.1	0.8	0.3	458	502	470
7	100	675	48	574	209	0.1	0.8	0.3	686	753	704
8	100	900	62	734	267	0.1	0.7	0.3	915	1004	939
6	110	567	37	444	162	0.1	0.7	0.3	637	699	654
7	110	850	52	616	224	0.1	0.6	0.3	955	1047	980
8	110	1132	66	784	286	0.1	0.6	0.2	1271	1395	1305
6	125	788	42	505	184	0.1	0.6	0.2	1027	1127	1054
7	125	1183	59	700	255	0.0	0.5	0.2	1542	1692	1583
8	125	1578	75	891	325	0.0	0.5	0.2	2057	2257	2112

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		3233	RCC With Recycling								
6	90	177	32	381	139	0.2	1.9	0.8	163	179	167
7	90	266	44	525	191	0.2	1.8	0.7	245	269	251
8	90	354	57	673	245	0.2	1.7	0.7	326	357	334
6	100	225	35	418	152	0.2	1.7	0.6	229	251	235
7	100	338	48	574	209	0.1	1.5	0.6	344	377	353
8	100	450	62	734	267	0.1	1.5	0.6	458	502	470
6	110	284	37	444	162	0.1	1.4	0.5	319	350	327
7	110	425	52	616	224	0.1	1.3	0.5	477	524	490
8	110	566	66	784	286	0.1	1.2	0.5	636	697	652
6	125	394	42	505	184	0.1	1.1	0.4	514	564	527
7	125	591	59	700	255	0.1	1.1	0.4	771	845	791
8	125	789	75	891	325	0.1	1.0	0.4	1029	1129	1056

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3233

Soft Coating | **High Profile Range** | **SSPC-SP 6**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
3241 RCC With Recycling											
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Tables 3241

Soft Coating | **Low Profile Range** | **SSPC-SP 7**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4111 RCC With Recycling											
6	90	106	32	381	139	0.3	3.2	1.3	98	107	100
6	100	135	35	418	152	0.3	2.8	1.1	137	151	141
6	110	171	37	444	162	0.2	2.3	0.9	192	211	197
6	125	236	42	505	184	0.2	1.9	0.7	308	338	316
7	90	154	44	525	191	0.3	3.1	1.2	142	156	145
7	100	195	48	574	209	0.2	2.6	1.0	198	218	203
7	110	245	52	616	224	0.2	2.3	0.9	275	302	282
7	125	342	59	700	255	0.2	1.8	0.7	446	489	458
8	90	213	57	673	245	0.3	2.8	1.1	196	215	201
8	100	270	62	734	267	0.2	2.4	0.9	275	301	282
8	110	340	66	784	286	0.2	2.1	0.8	382	419	392
8	125	474	75	891	325	0.2	1.7	0.7	618	678	634

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4112 RCC With Recycling											
6	90	70	32	381	139	0.5	4.9	1.9	64	71	66
6	100	90	35	418	152	0.4	4.2	1.6	92	100	94
6	110	114	37	444	162	0.3	3.5	1.4	128	140	131
6	125	157	42	505	184	0.3	2.9	1.1	205	225	210
7	90	103	44	525	191	0.4	4.6	1.8	95	104	97
7	100	130	48	574	209	0.4	4.0	1.5	132	145	136
7	110	163	52	616	224	0.3	3.4	1.3	183	201	188
7	125	228	59	700	255	0.3	2.8	1.1	297	326	305
8	90	142	57	673	245	0.4	4.2	1.7	131	143	134
8	100	180	62	734	267	0.3	3.7	1.4	183	201	188
8	110	226	66	784	286	0.3	3.1	1.2	254	278	260
8	125	316	75	891	325	0.2	2.5	1.0	412	452	423

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4113 RCC With Recycling											
6	90	35	32	381	139	0.9	9.8	3.8	32	35	33
6	100	45	35	418	152	0.8	8.3	3.2	46	50	47
6	110	57	37	444	162	0.6	7.0	2.7	64	70	66
6	125	79	42	505	184	0.5	5.7	2.2	103	113	106
7	90	51	44	525	191	0.9	9.2	3.6	47	51	48
7	100	65	48	574	209	0.7	7.9	3.1	66	73	68
7	110	82	52	616	224	0.6	6.7	2.6	92	101	95
7	125	114	59	700	255	0.5	5.5	2.1	149	163	153
8	90	71	57	673	245	0.8	8.5	3.3	65	72	67
8	100	90	62	734	267	0.7	7.3	2.8	92	100	94
8	110	113	66	784	286	0.6	6.2	2.4	127	139	130
8	125	158	75	891	325	0.5	5.1	2.0	206	226	211

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4121 RCC With Recycling											
6	90	117	32	381	139	0.3	2.9	1.1	108	118	111
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
6	110	190	37	444	162	0.2	2.1	0.8	213	234	219
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	90	166	44	525	191	0.3	2.8	1.1	153	168	157
7	100	210	48	574	209	0.2	2.5	1.0	214	234	219
7	110	264	52	616	224	0.2	2.1	0.8	296	325	304
7	125	367	59	700	255	0.2	1.7	0.7	478	525	491
8	90	236	57	673	245	0.2	2.6	1.0	217	238	223
8	100	300	62	734	267	0.2	2.2	0.9	305	335	313
8	110	377	66	784	286	0.2	1.9	0.7	423	464	435
8	125	527	75	891	325	0.1	1.5	0.6	687	754	705

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 10**

Tables 4121

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4122 RCC With Recycling									
6	90	78	32	381	139	0.4	4.4	1.7	72	79	74
6	100	100	35	418	152	0.3	3.7	1.5	102	112	104
6	110	126	37	444	162	0.3	3.2	1.2	142	155	145
6	125	176	42	505	184	0.2	2.6	1.0	229	252	236
7	90	111	44	525	191	0.4	4.2	1.7	102	112	105
7	100	140	48	574	209	0.3	3.7	1.4	142	156	146
7	110	176	52	616	224	0.3	3.1	1.2	198	217	203
7	125	245	59	700	255	0.2	2.6	1.0	319	350	328
8	90	158	57	673	245	0.4	3.8	1.5	145	160	149
8	100	200	62	734	267	0.3	3.3	1.3	203	223	209
8	110	252	66	784	286	0.3	2.8	1.1	283	310	290
8	125	351	75	891	325	0.2	2.3	0.9	458	502	470

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft^2/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft^2/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4123 RCC With Recycling											
6	90	39	32	381	139	0.8	8.8	3.4	36	39	37
6	100	50	35	418	152	0.7	7.5	2.9	51	56	52
6	110	63	37	444	162	0.6	6.3	2.5	71	78	73
6	125	88	42	505	184	0.5	5.1	2.0	115	126	118
7	90	55	44	525	191	0.8	8.6	3.3	51	56	52
7	100	70	48	574	209	0.7	7.4	2.9	71	78	73
7	110	88	52	616	224	0.6	6.3	2.4	99	108	101
7	125	122	59	700	255	0.5	5.1	2.0	159	175	163
8	90	79	57	673	245	0.7	7.6	3.0	73	80	75
8	100	100	62	734	267	0.6	6.6	2.6	102	112	104
8	110	126	66	784	286	0.5	5.6	2.2	142	155	145
8	125	176	75	891	325	0.4	4.5	1.8	229	252	236

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 10**

Tables 4123

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4131 RCC With Recycling											
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	90	354	44	525	191	0.1	1.3	0.5	326	357	334
7	100	450	48	574	209	0.1	1.1	0.4	458	502	470
7	110	567	52	616	224	0.1	1.0	0.4	637	699	654
7	125	788	59	700	255	0.1	0.8	0.3	1027	1127	1054
8	90	473	57	673	245	0.1	1.3	0.5	435	478	447
8	100	600	62	734	267	0.1	1.1	0.4	610	669	626
8	110	755	66	784	286	0.1	0.9	0.4	848	930	870
8	125	1051	75	891	325	0.1	0.8	0.3	1370	1503	1406

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4132	**RCC With Recycling**								
6	90	158	32	381	139	0.2	2.2	0.8	145	160	149
6	100	200	35	418	152	0.2	1.9	0.7	203	223	209
6	110	252	37	444	162	0.1	1.6	0.6	283	310	290
6	125	351	42	505	184	0.1	1.3	0.5	458	502	470
7	90	236	44	525	191	0.2	2.0	0.8	217	238	223
7	100	300	48	574	209	0.2	1.7	0.7	305	335	313
7	110	378	52	616	224	0.1	1.5	0.6	425	466	436
7	125	525	59	700	255	0.1	1.2	0.5	684	751	703
8	90	315	57	673	245	0.2	1.9	0.7	290	318	298
8	100	400	62	734	267	0.2	1.6	0.6	407	446	417
8	110	503	66	784	286	0.1	1.4	0.5	565	620	580
8	125	701	75	891	325	0.1	1.1	0.4	914	1003	938

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
		4133	**RCC With Recycling**								
6	90	79	32	381	139	0.4	4.3	1.7	73	80	75
6	100	100	35	418	152	0.3	3.7	1.5	102	112	104
6	110	126	37	444	162	0.3	3.2	1.2	142	155	145
6	125	176	42	505	184	0.2	2.6	1.0	229	252	236
7	90	118	44	525	191	0.4	4.0	1.6	109	119	111
7	100	150	48	574	209	0.3	3.4	1.3	153	167	157
7	110	189	52	616	224	0.3	2.9	1.1	212	233	218
7	125	263	59	700	255	0.2	2.4	0.9	343	376	352
8	90	158	57	673	245	0.4	3.8	1.5	145	160	149
8	100	200	62	734	267	0.3	3.3	1.3	203	223	209
8	110	252	66	784	286	0.3	2.8	1.1	283	310	290
8	125	350	75	891	325	0.2	2.3	0.9	456	501	468

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 6**

Tables 4133

RCC, RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4141	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 7**

Tables 4141

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4211 **RCC With Recycling**									
6	90	159	32	381	139	0.2	2.2	0.8	146	161	150
6	100	203	35	418	152	0.2	1.8	0.7	206	226	212
6	110	256	37	444	162	0.1	1.6	0.6	287	315	295
6	125	354	42	505	184	0.1	1.3	0.5	462	506	474
7	90	231	44	525	191	0.2	2.0	0.8	213	233	218
7	100	293	48	574	209	0.2	1.8	0.7	298	327	306
7	110	367	52	616	224	0.1	1.5	0.6	412	452	423
7	125	513	59	700	255	0.1	1.2	0.5	669	734	686
8	90	319	57	673	245	0.2	1.9	0.7	294	322	301
8	100	405	62	734	267	0.1	1.6	0.6	412	452	423
8	110	509	66	784	286	0.1	1.4	0.5	572	627	587
8	125	710	75	891	325	0.1	1.1	0.4	926	1016	950

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **Low Profile Range** **SSPC-SP 5**

Tables 4211

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4212	**RCC With Recycling**								
6	90	106	32	381	139	0.3	3.2	1.3	98	107	100
6	100	135	35	418	152	0.3	2.8	1.1	137	151	141
6	110	171	37	444	162	0.2	2.3	0.9	192	211	197
6	125	236	42	505	184	0.2	1.9	0.7	308	338	316
7	90	154	44	525	191	0.3	3.1	1.2	142	156	145
7	100	195	48	574	209	0.2	2.6	1.0	198	218	203
7	110	245	52	616	224	0.2	2.3	0.9	275	302	282
7	125	342	59	700	255	0.2	1.8	0.7	446	489	458
8	90	213	57	673	245	0.3	2.8	1.1	196	215	201
8	100	270	62	734	267	0.2	2.4	0.9	275	301	282
8	110	340	66	784	286	0.2	2.1	0.8	382	419	392
8	125	474	75	891	325	0.2	1.7	0.7	618	678	634

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4213 RCC With Recycling											
6	90	53	32	381	139	0.6	6.5	2.5	49	54	50
6	100	68	35	418	152	0.5	5.5	2.1	69	76	71
6	110	85	37	444	162	0.4	4.7	1.8	95	105	98
6	125	118	42	505	184	0.4	3.8	1.5	154	169	158
7	90	77	44	525	191	0.6	6.1	2.4	71	78	73
7	100	98	48	574	209	0.5	5.3	2.0	100	109	102
7	110	122	52	616	224	0.4	4.5	1.8	137	150	141
7	125	171	59	700	255	0.3	3.7	1.4	223	245	229
8	90	106	57	673	245	0.5	5.7	2.2	98	107	100
8	100	135	62	734	267	0.4	4.9	1.9	137	151	141
8	110	170	66	784	286	0.4	4.1	1.6	191	209	196
8	125	237	75	891	325	0.3	3.4	1.3	309	339	317

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **High Profile Range** **SSPC-SP 5**

Tables 4213

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft^2			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4221	**RCC With Recycling**								
6	90	176	32	381	139	0.2	1.9	0.8	162	178	166
6	100	225	35	418	152	0.2	1.7	0.6	229	251	235
6	110	284	37	444	162	0.1	1.4	0.5	319	350	327
6	125	395	42	505	184	0.1	1.1	0.4	515	565	529
7	90	249	44	525	191	0.2	1.9	0.7	229	251	235
7	100	315	48	574	209	0.2	1.6	0.6	320	351	329
7	110	396	52	616	224	0.1	1.4	0.5	445	488	456
7	125	551	59	700	255	0.1	1.1	0.4	718	788	737
8	90	354	57	673	245	0.2	1.7	0.7	326	357	334
8	100	450	62	734	267	0.1	1.5	0.6	458	502	470
8	110	566	66	784	286	0.1	1.2	0.5	636	697	652
8	125	790	75	891	325	0.1	1.0	0.4	1030	1130	1057

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 10**

Tables 4221

RCC , RCP and PR

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
		4222	**RCC With Recycling**								
6	90	117	32	381	139	0.3	2.9	1.1	108	118	111
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
6	110	190	37	444	162	0.2	2.1	0.8	213	234	219
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	90	166	44	525	191	0.3	2.8	1.1	153	168	157
7	100	210	48	574	209	0.2	2.5	1.0	214	234	219
7	110	264	52	616	224	0.2	2.1	0.8	296	325	304
7	125	367	59	700	255	0.2	1.7	0.7	478	525	491
8	90	236	57	673	245	0.2	2.6	1.0	217	238	223
8	100	300	62	734	267	0.2	2.2	0.9	305	335	313
8	110	377	66	784	286	0.2	1.9	0.7	423	464	435
8	125	527	75	891	325	0.1	1.5	0.6	687	754	705

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 10**

Tables 4222

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4223	**RCC With Recycling**								
6	90	59	32	381	139	0.5	5.8	2.3	54	60	56
6	100	75	35	418	152	0.5	5.0	1.9	76	84	78
6	110	95	37	444	162	0.4	4.2	1.6	107	117	110
6	125	132	42	505	184	0.3	3.4	1.3	172	189	177
7	90	83	44	525	191	0.5	5.7	2.2	76	84	78
7	100	105	48	574	209	0.5	4.9	1.9	107	117	110
7	110	132	52	616	224	0.4	4.2	1.6	148	163	152
7	125	184	59	700	255	0.3	3.4	1.3	240	263	246
8	90	118	57	673	245	0.5	5.1	2.0	109	119	111
8	100	150	62	734	267	0.4	4.4	1.7	153	167	157
8	110	189	66	784	286	0.3	3.7	1.4	212	233	218
8	125	263	75	891	325	0.3	3.0	1.2	343	376	352

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 10**

Tables 4223

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
4231 RCC With Recycling											
6	90	354	32	381	139	0.1	1.0	0.4	326	357	334
6	100	450	35	418	152	0.1	0.8	0.3	458	502	470
6	110	566	37	444	162	0.1	0.7	0.3	636	697	652
6	125	790	42	505	184	0.1	0.6	0.2	1030	1130	1057
7	90	531	44	525	191	0.1	0.9	0.3	489	536	502
7	100	675	48	574	209	0.1	0.8	0.3	686	753	704
7	110	851	52	616	224	0.1	0.6	0.3	956	1048	981
7	125	1182	59	700	255	0.0	0.5	0.2	1541	1691	1582
8	90	709	57	673	245	0.1	0.9	0.3	653	716	670
8	100	900	62	734	267	0.1	0.7	0.3	915	1004	939
8	110	1132	66	784	286	0.1	0.6	0.2	1271	1395	1305
8	125	1577	75	891	325	0.0	0.5	0.2	2056	2256	2110

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Tables 4231

Soft Coating | **Low Profile Range** | **SSPC-SP 6**

RCC, RCP and PR

Operating Conditions: Nozzle Size	Operating Conditions: Pressure (psi)	Median Production Rate ft²/hr	Consumption Rate lbs/hr: Steel Iron	Consumption Rate lbs/hr: Garnet	Consumption Rate lbs/hr: Alumina	Consumption Rate lbs/ft²: Steel Iron	Consumption Rate lbs/ft²: Garnet	Consumption Rate lbs/ft²: Alumina	Production Rate ft²/hr of Blasting [1]: Steel Iron	Production Rate ft²/hr of Blasting [1]: Garnet	Production Rate ft²/hr of Blasting [1]: Alumina
		4232 RCC With Recycling									
6	90	236	32	381	139	0.1	1.4	0.6	217	238	223
6	100	300	35	418	152	0.1	1.2	0.5	305	335	313
6	110	377	37	444	162	0.1	1.1	0.4	423	464	435
6	125	527	42	505	184	0.1	0.9	0.3	687	754	705
7	90	354	44	525	191	0.1	1.3	0.5	326	357	334
7	100	450	48	574	209	0.1	1.1	0.4	458	502	470
7	110	567	52	616	224	0.1	1.0	0.4	637	699	654
7	125	788	59	700	255	0.1	0.8	0.3	1027	1127	1054
8	90	473	57	673	245	0.1	1.3	0.5	435	478	447
8	100	600	62	734	267	0.1	1.1	0.4	610	669	626
8	110	755	66	784	286	0.1	0.9	0.4	848	930	870
8	125	1051	75	891	325	0.1	0.8	0.3	1370	1503	1406

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Tables 4232

Soft Coating | **Medium Profile Range** | **SSPC-SP 6**

RCC , RCP and PR

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4233	**RCC With Recycling**								
6	90	118	32	381	139	0.3	2.9	1.1	109	119	111
6	100	150	35	418	152	0.2	2.5	1.0	153	167	157
6	110	189	37	444	162	0.2	2.1	0.8	212	233	218
6	125	263	42	505	184	0.2	1.7	0.7	343	376	352
7	90	177	44	525	191	0.2	2.7	1.0	163	179	167
7	100	225	48	574	209	0.2	2.3	0.9	229	251	235
7	110	284	52	616	224	0.2	1.9	0.8	319	350	327
7	125	394	59	700	255	0.1	1.6	0.6	514	564	527
8	90	236	57	673	245	0.2	2.6	1.0	217	238	223
8	100	300	62	734	267	0.2	2.2	0.9	305	335	313
8	110	377	66	784	286	0.2	1.9	0.7	423	464	435
8	125	526	75	891	325	0.1	1.5	0.6	686	752	704

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Median Production Rate ft²/hr	Consumption Rate lbs/hr			Consumption Rate lbs/ft²			Production Rate ft²/hr of Blasting [1]		
Nozzle Size	Pressure (psi)		Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina	Steel Iron	Garnet	Alumina
		4241	**RCC With Recycling**								
6	90	788	32	381	139	0.0	0.4	0.2	725	796	744
7	90	1181	44	525	191	0.0	0.4	0.2	1087	1193	1116
8	90	1574	57	673	245	0.0	0.4	0.1	1449	1589	1487
6	100	1000	35	418	152	0.0	0.4	0.1	1017	1115	1043
7	100	1500	48	574	209	0.0	0.3	0.1	1525	1673	1565
8	100	2000	62	734	267	0.0	0.3	0.1	2033	2231	2087
6	110	1258	37	444	162	0.0	0.3	0.1	1413	1550	1450
7	110	1888	52	616	224	0.0	0.3	0.1	2120	2326	2176
8	110	2518	66	784	286	0.0	0.3	0.1	2828	3102	2902
6	125	1753	42	505	184	0.0	0.3	0.1	2286	2507	2346
7	125	2629	59	700	255	0.0	0.2	0.1	3428	3761	3518
8	125	3507	75	891	325	0.0	0.2	0.1	4572	5016	4693

[1] Production rates are based on a consensus of replies to a user survey.

This Section of The Data Tables Contains Tables from 1111 through 4241 for Consumable Abrasive Production Rates.

Operating Conditions		Production Rate ft²/hr of Blasting [1]																
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured					
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	195	260	325	251	250	222	248	246	255	263	235	256	246	248	239
7	90	283	377	471	364	363	322	360	356	370	381	341	371	356	359	347
8	90	390	520	650	503	500	445	497	491	510	525	471	512	491	496	479
6	100	248	330	413	352	351	312	348	344	358	368	330	359	344	347	335
7	100	360	480	600	513	510	453	507	501	520	535	480	522	501	505	488
8	100	495	660	825	705	701	623	697	689	715	736	660	718	689	695	671
6	110	311	415	519	490	487	433	484	478	497	511	458	499	478	483	466
7	110	454	605	756	714	710	631	705	697	724	745	668	727	697	703	679
8	110	623	831	1039	980	975	867	969	958	994	1024	918	999	958	966	933
6	125	434	578	723	792	788	700	782	773	803	827	741	807	773	780	754
7	125	631	841	1051	1152	1146	1019	1138	1125	1168	1203	1079	1174	1125	1135	1097
8	125	868	1157	1446	1585	1577	1401	1566	1548	1607	1655	1484	1615	1548	1562	1509

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating **Low Profile Range** **SSPC-SP 5** **Tables** **1111** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	130	173	216	167	166	148	165	163	170	175	157	170	163	165	159
7	90	188	251	314	243	241	215	240	237	246	253	227	247	237	239	231
8	90	260	346	433	335	333	296	331	327	339	349	313	341	327	330	318
6	100	165	220	275	235	234	208	232	230	238	245	220	239	230	232	224
7	100	240	320	400	342	340	302	338	334	347	357	320	348	334	337	325
8	100	330	440	550	470	468	416	464	459	477	491	440	479	459	463	447
6	110	208	277	346	327	325	289	323	319	331	341	306	333	319	322	311
7	110	302	403	504	475	473	420	470	465	482	497	445	484	465	469	453
8	110	416	554	693	654	650	578	646	639	663	683	612	666	639	644	622
6	125	289	385	481	527	525	466	521	515	535	551	494	537	515	520	502
7	125	421	561	701	768	764	679	759	751	779	802	719	783	751	757	731
8	125	579	772	965	1057	1052	935	1045	1033	1073	1104	990	1077	1033	1042	1007

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **1112** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	65	87	109	84	84	74	83	82	85	88	79	86	82	83	80
7	90	95	126	158	122	121	108	120	119	124	127	114	124	119	120	116
8	90	130	173	216	167	166	148	165	163	170	175	157	170	163	165	159
6	100	83	110	138	117	117	104	116	115	119	123	110	120	115	116	112
7	100	120	160	200	171	170	151	169	167	173	178	160	174	167	168	163
8	100	165	220	275	235	234	208	232	230	238	245	220	239	230	232	224
6	110	104	138	173	163	162	144	161	159	165	170	152	166	159	160	155
7	110	152	202	253	238	237	211	236	233	242	249	223	243	233	235	227
8	110	208	277	346	327	325	289	323	319	331	341	306	333	319	322	311
6	125	145	193	241	264	263	234	261	258	268	276	248	269	258	261	252
7	125	210	280	350	383	382	339	379	375	389	401	359	391	375	378	365
8	125	290	386	483	529	526	468	523	517	536	552	495	539	517	521	503

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating	High Profile Range	SSPC-SP 5	Tables	1113	PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	212	283	354	274	272	242	270	267	278	286	256	279	267	270	260
7	90	311	414	518	400	398	354	396	391	406	418	375	408	391	395	381
8	90	425	567	709	548	545	485	542	536	556	573	513	559	536	540	522
6	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
7	100	394	525	656	561	558	496	554	548	569	586	525	571	548	553	534
8	100	540	720	900	769	765	680	760	751	780	803	720	784	751	758	732
6	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
7	110	495	660	825	779	775	689	770	761	790	813	729	793	761	767	741
8	110	680	907	1134	1070	1065	946	1058	1045	1085	1117	1002	1090	1045	1055	1019
6	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823
7	125	689	919	1149	1259	1252	1113	1244	1230	1277	1315	1179	1283	1230	1241	1198
8	125	946	1261	1576	1727	1718	1527	1707	1687	1752	1804	1617	1760	1687	1702	1644

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** **1121** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	142	189	236	183	182	162	181	179	185	191	171	186	179	180	174
7	90	207	276	345	267	265	236	264	261	271	279	250	272	261	263	254
8	90	284	378	473	365	364	323	361	357	371	382	342	372	357	360	348
6	100	180	240	300	256	255	227	253	250	260	268	240	261	250	253	244
7	100	263	350	438	374	372	331	369	365	379	390	350	381	365	368	356
8	100	360	480	600	513	510	453	507	501	520	535	480	522	501	505	488
6	110	227	302	378	356	354	315	352	348	361	372	334	363	348	351	339
7	110	330	440	550	519	516	459	513	507	527	542	486	529	507	512	494
8	110	453	604	755	713	709	630	704	696	723	744	667	726	696	702	678
6	125	315	420	525	575	572	509	569	562	584	601	539	586	562	567	548
7	125	460	613	766	840	835	742	830	820	852	877	786	855	820	828	799
8	125	631	841	1051	1152	1146	1019	1138	1125	1168	1203	1079	1174	1125	1135	1097

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	71	94	118	91	90	80	90	89	92	95	85	93	89	90	87				
7	90	104	138	173	133	133	118	132	130	135	139	125	136	130	132	127				
8	90	142	189	236	183	182	162	181	179	185	191	171	186	179	180	174				
6	100	90	120	150	128	128	113	127	125	130	134	120	131	125	126	122				
7	100	131	175	219	187	186	165	185	183	190	195	175	190	183	184	178				
8	100	180	240	300	256	255	227	253	250	260	268	240	261	250	253	244				
6	110	113	151	189	178	177	158	176	174	181	186	167	182	174	176	170				
7	110	165	220	275	260	258	230	257	254	263	271	243	264	254	256	247				
8	110	227	302	378	356	354	315	352	348	361	372	334	363	348	351	339				
6	125	158	210	263	288	286	254	284	281	292	300	269	293	281	283	274				
7	125	230	306	383	419	417	371	414	409	425	438	392	427	409	413	399				
8	125	315	420	525	575	572	509	569	562	584	601	539	586	562	567	548				

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **1123** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	442	590	737	570	568	504	564	557	579	596	534	581	557	562	543	
7	90	665	886	1108	857	852	758	847	837	869	895	802	873	837	844	815	
8	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087	
6	100	563	750	938	801	797	708	792	783	813	837	750	816	783	789	763	
7	100	844	1125	1406	1201	1195	1063	1188	1174	1219	1255	1125	1224	1174	1184	1144	
8	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525	
6	110	709	945	1181	1115	1109	986	1102	1089	1131	1164	1044	1136	1089	1099	1061	
7	110	1061	1415	1769	1669	1661	1476	1650	1631	1693	1743	1563	1701	1631	1645	1589	
8	110	1415	1887	2359	2226	2215	1969	2200	2175	2258	2325	2084	2268	2175	2194	2119	
6	125	986	1314	1643	1800	1790	1591	1779	1758	1826	1880	1685	1834	1758	1774	1713	
7	125	1480	1973	2466	2702	2688	2390	2671	2640	2741	2822	2530	2753	2640	2663	2572	
8	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428	

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	295	393	491	380	378	336	376	371	385	397	356	387	371	375	362
7	90	443	591	739	571	568	505	565	558	580	597	535	582	558	563	544
8	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
6	100	375	500	625	534	531	472	528	522	542	558	500	544	522	526	508
7	100	563	750	938	801	797	708	792	783	813	837	750	816	783	789	763
8	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
6	110	472	630	787	743	739	657	735	726	754	776	696	757	726	733	708
7	110	707	943	1179	1112	1107	984	1100	1087	1128	1162	1042	1134	1087	1096	1059
8	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
6	125	657	876	1095	1200	1194	1061	1186	1172	1217	1253	1123	1223	1172	1183	1142
7	125	986	1315	1644	1801	1792	1593	1780	1760	1827	1881	1686	1835	1760	1775	1715
8	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | Medium Profile Range | SSPC-SP 6 | **Tables** 1132 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured					
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron		
6	90	148	197	246	190	189	168	188	186	193	199	178	194	186	188	181		
7	90	221	295	369	285	284	252	282	279	289	298	267	291	279	281	272		
8	90	296	394	493	381	379	337	376	372	386	398	357	388	372	375	363		
6	100	188	250	313	267	266	236	264	261	271	279	250	272	261	263	254		
7	100	281	375	469	400	398	354	396	391	406	418	375	408	391	395	381		
8	100	375	500	625	534	531	472	528	522	542	558	500	544	522	526	508		
6	110	236	315	394	372	370	329	367	363	377	388	348	379	363	366	354		
7	110	354	472	590	557	554	492	550	544	565	582	521	567	544	549	530		
8	110	472	629	786	742	738	656	733	725	753	775	695	756	725	731	706		
6	125	329	438	548	600	597	530	593	586	609	627	562	611	586	591	571		
7	125	494	658	823	901	897	797	891	881	914	941	844	918	881	888	858		
8	125	657	876	1095	1200	1194	1061	1186	1172	1217	1253	1123	1223	1172	1183	1142		

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating **High Profile Range** **SSPC-SP 6** **Tables** **1133** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **1141** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	293	390	488	377	375	333	373	368	382	394	353	384	368	372	359
7	90	424	566	707	547	544	484	541	535	555	572	512	558	535	539	521
8	90	584	779	974	753	749	666	744	736	764	787	705	767	736	742	717
6	100	371	495	619	529	526	467	522	517	536	552	495	539	517	521	503
7	100	540	720	900	769	765	680	760	751	780	803	720	784	751	758	732
8	100	743	990	1238	1057	1052	935	1045	1033	1073	1104	990	1077	1033	1042	1007
6	110	467	623	779	735	731	650	726	718	746	768	688	749	718	724	700
7	110	681	908	1135	1071	1066	947	1059	1047	1087	1119	1003	1091	1047	1056	1020
8	110	935	1246	1558	1470	1462	1300	1453	1436	1491	1535	1376	1498	1436	1449	1399
6	125	650	866	1083	1186	1180	1049	1172	1159	1203	1239	1111	1209	1159	1169	1129
7	125	946	1261	1576	1727	1718	1527	1707	1687	1752	1804	1617	1760	1687	1702	1644
8	125	1302	1736	2170	2378	2365	2103	2350	2323	2412	2483	2226	2423	2323	2343	2263

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables 1211 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	195	260	325	251	250	222	248	246	255	263	235	256	246	248	239			
7	90	283	377	471	364	363	322	360	356	370	381	341	371	356	359	347			
8	90	390	520	650	503	500	445	497	491	510	525	471	512	491	496	479			
6	100	248	330	413	352	351	312	348	344	358	368	330	359	344	347	335			
7	100	360	480	600	513	510	453	507	501	520	535	480	522	501	505	488			
8	100	495	660	825	705	701	623	697	689	715	736	660	718	689	695	671			
6	110	311	415	519	490	487	433	484	478	497	511	458	499	478	483	466			
7	110	454	605	756	714	710	631	705	697	724	745	668	727	697	703	679			
8	110	623	831	1039	980	975	867	969	958	994	1024	918	999	958	966	933			
6	125	434	578	723	792	788	700	782	773	803	827	741	807	773	780	754			
7	125	631	841	1051	1152	1146	1019	1138	1125	1168	1203	1079	1174	1125	1135	1097			
8	125	868	1157	1446	1585	1577	1401	1566	1548	1607	1655	1484	1615	1548	1562	1509			

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **1212** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																	
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**						
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	98	130	163	126	125	111	124	123	127	131	118	128	123	124	120			
7	90	142	189	236	183	182	162	181	179	185	191	171	186	179	180	174			
8	90	195	260	325	251	250	222	248	246	255	263	235	256	246	248	239			
6	100	124	165	206	176	175	156	174	172	179	184	165	180	172	174	168			
7	100	180	240	300	256	255	227	253	250	260	268	240	261	250	253	244			
8	100	248	330	413	352	351	312	348	344	358	368	330	359	344	347	336			
6	110	156	208	260	245	244	217	243	240	249	256	230	250	240	242	234			
7	110	227	303	379	357	356	316	353	349	363	373	335	364	349	352	340			
8	110	311	415	519	490	487	433	484	478	497	511	458	499	478	483	466			
6	125	217	289	361	396	394	350	391	387	402	413	371	403	387	390	377			
7	125	315	420	525	575	572	509	569	562	584	601	539	586	562	567	548			
8	125	434	579	724	793	789	701	784	775	804	828	743	808	775	782	755			

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **1213** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	319	425	531	411	409	363	406	401	417	429	385	419	401	405	391
7	90	466	621	776	600	597	531	593	587	609	627	562	612	587	592	572
8	90	637	850	1063	822	818	727	812	803	834	858	769	837	803	810	782
6	100	405	540	675	577	574	510	570	563	585	602	540	588	563	568	549
7	100	591	788	985	842	837	744	832	822	854	879	788	858	822	829	801
8	100	810	1080	1350	1153	1148	1020	1140	1127	1170	1205	1080	1175	1127	1137	1098
6	110	510	680	850	802	798	709	793	784	814	838	751	817	784	791	764
7	110	742	990	1238	1168	1162	1033	1154	1141	1185	1220	1094	1190	1141	1151	1112
8	110	1020	1360	1700	1604	1596	1419	1586	1568	1627	1676	1502	1635	1568	1581	1527
6	125	709	946	1183	1296	1289	1146	1281	1266	1314	1353	1213	1320	1266	1277	1233
7	125	1034	1379	1724	1889	1879	1670	1867	1845	1916	1973	1768	1925	1845	1862	1798
8	125	1419	1892	2365	2591	2578	2292	2561	2532	2629	2706	2426	2640	2532	2554	2467

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** 1221 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	212	283	354	274	272	242	270	267	278	286	256	279	267	270	260
7	90	311	414	518	400	398	354	396	391	406	418	375	408	391	395	381
8	90	425	567	709	548	545	485	542	536	556	573	513	559	536	540	522
6	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
7	100	394	525	656	561	558	496	554	548	569	586	525	571	548	553	534
8	100	540	720	900	769	765	680	760	751	780	803	720	784	751	758	732
6	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
7	110	495	660	825	779	775	689	770	761	790	813	729	793	761	767	741
8	110	680	907	1134	1070	1065	946	1058	1045	1085	1117	1002	1090	1045	1055	1019
6	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823
7	125	689	919	1149	1259	1252	1113	1244	1230	1277	1315	1179	1283	1230	1241	1198
8	125	946	1261	1576	1727	1718	1527	1707	1687	1752	1804	1617	1760	1687	1702	1644

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating **Medium Profile Range** **SSPC-SP 10** **Tables** 1222 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
7	90	155	207	259	200	199	177	198	196	203	209	187	204	196	197	191
8	90	212	283	354	274	272	242	270	267	278	286	256	279	267	270	260
6	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
7	100	197	263	329	281	279	248	278	274	285	293	263	286	274	277	267
8	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
6	110	170	227	284	268	266	237	265	262	272	280	251	273	262	264	255
7	110	248	330	413	389	387	344	385	380	395	407	365	397	380	384	371
8	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
6	125	236	315	394	431	429	382	426	422	438	451	404	440	422	425	411
7	125	345	460	575	630	627	557	623	616	639	658	590	642	616	621	600
8	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating **High Profile Range** **SSPC-SP 10** **Tables** **1223** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	664	885	1106	856	851	757	846	836	868	894	801	872	836	843	815				
7	90	997	1329	1661	1285	1278	1136	1270	1255	1303	1342	1203	1309	1255	1266	1223				
8	90	1329	1772	2215	1713	1704	1515	1693	1674	1738	1789	1604	1746	1674	1689	1631				
6	100	844	1125	1406	1201	1195	1063	1188	1174	1219	1255	1125	1224	1174	1184	1144				
7	100	1266	1688	2110	1803	1794	1594	1782	1761	1829	1883	1688	1837	1761	1777	1716				
8	100	1688	2250	2813	2403	2391	2125	2375	2348	2438	2510	2250	2449	2348	2368	2288				
6	110	1063	1417	1771	1672	1663	1478	1652	1633	1696	1746	1565	1703	1633	1648	1591				
7	110	1592	2123	2654	2504	2492	2215	2475	2447	2541	2616	2345	2552	2447	2469	2384				
8	110	2123	2831	3539	3340	3323	2953	3301	3263	3388	3488	3127	3403	3263	3292	3179				
6	125	1479	1972	2465	2701	2687	2388	2669	2639	2740	2821	2529	2752	2639	2662	2571				
7	125	2219	2959	3699	4053	4032	3584	4006	3960	4111	4233	3795	4130	3960	3994	3858				
8	125	2957	3943	4929	5400	5373	4776	5338	5276	5478	5640	5057	5503	5276	5323	5141				

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **1231** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	442	590	737	570	568	504	564	557	579	596	534	581	557	562	543
7	90	665	886	1108	857	852	758	847	837	869	895	802	873	837	844	815
8	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
6	100	563	750	938	801	797	708	792	783	813	837	750	816	783	789	763
7	100	844	1125	1406	1201	1195	1063	1188	1174	1219	1255	1125	1224	1174	1184	1144
8	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
6	110	709	945	1181	1115	1109	986	1102	1089	1131	1164	1044	1136	1089	1099	1061
7	110	1061	1415	1769	1669	1661	1476	1650	1631	1693	1743	1563	1701	1631	1645	1589
8	110	1415	1887	2359	2226	2215	1969	2200	2175	2258	2325	2084	2268	2175	2194	2119
6	125	986	1314	1643	1800	1790	1591	1779	1758	1826	1880	1685	1834	1758	1774	1713
7	125	1480	1973	2466	2702	2688	2390	2671	2640	2741	2822	2530	2753	2640	2663	2572
8	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **1232** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	221	295	369	285	284	252	282	279	289	298	267	291	279	281	272
7	90	332	443	554	428	426	379	423	418	434	447	401	436	418	422	408
8	90	443	591	739	571	568	505	565	558	580	597	535	582	558	563	544
6	100	281	375	469	400	398	354	396	391	406	418	375	408	391	395	381
7	100	422	563	704	601	598	532	594	587	610	628	563	613	587	593	572
8	100	562	750	937	801	797	708	792	783	813	837	750	816	783	789	762
6	110	354	472	590	557	554	492	550	544	565	582	521	567	544	549	530
7	110	531	708	885	835	831	739	826	816	847	872	782	851	816	823	795
8	110	708	944	1180	1114	1108	985	1101	1088	1130	1163	1043	1135	1088	1098	1060
6	125	493	657	821	900	895	796	889	879	913	940	843	917	879	887	857
7	125	740	986	1233	1350	1344	1194	1335	1319	1370	1410	1264	1376	1319	1331	1286
8	125	986	1314	1643	1800	1790	1591	1779	1758	1826	1880	1685	1834	1758	1774	1713

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating **High Profile Range** **SSPC-SP 6** **Tables** **1233** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Light Rust, Millscale or Loose Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **1241** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
7	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
8	90	320	426	533	412	410	364	407	402	418	430	386	420	402	406	392
6	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
7	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
8	100	405	540	675	577	574	510	570	563	585	602	540	588	563	568	549
6	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
7	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
8	110	509	679	849	801	797	708	792	783	813	837	750	816	783	790	763
6	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618
7	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892
8	125	710	947	1184	1297	1290	1147	1282	1267	1316	1355	1214	1322	1267	1278	1235

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft^2/hr of Blasting [1]														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
7	90	153	204	255	197	196	174	195	193	200	206	185	201	193	194	188
8	90	213	284	355	275	273	243	271	268	279	287	257	280	268	271	261
6	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
7	100	195	260	325	278	276	246	274	271	282	290	260	283	271	274	264
8	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
6	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
7	110	246	328	410	387	385	342	382	378	393	404	362	394	378	381	368
8	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
6	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412
7	125	342	456	570	625	621	552	617	610	634	652	585	636	610	616	595
8	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	53	71	89	69	68	61	68	67	70	72	64	70	67	68	65
7	90	77	102	128	99	98	87	97	96	100	103	92	100	96	97	94
8	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
6	100	68	90	113	96	96	85	95	94	98	100	90	98	94	95	92
7	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132
8	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
6	110	85	113	141	133	133	118	132	130	135	139	125	136	130	131	127
7	110	123	164	205	193	192	171	191	189	196	202	181	197	189	191	184
8	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
6	125	119	158	198	216	215	191	214	211	220	226	203	221	211	213	206
7	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297
8	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | High Profile Range | SSPC-SP 5 | Tables 2113 PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	248	330	413	319	317	282	315	312	324	333	299	325	312	314	304
8	90	346	461	576	446	443	394	441	435	452	465	417	454	435	439	424
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	315	420	525	449	446	397	443	438	455	468	420	457	438	442	427
8	100	439	585	731	625	622	553	618	610	634	653	585	637	610	616	595
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
7	110	397	529	661	624	621	552	617	610	633	652	584	636	610	615	594
8	110	552	736	920	868	864	768	858	848	881	907	813	885	848	856	827
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	125	553	737	921	1009	1004	893	998	986	1024	1054	945	1029	986	995	961
8	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
7	90	165	220	275	213	212	188	210	208	216	222	199	217	208	210	202
8	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
7	100	210	280	350	299	298	264	296	292	303	312	280	305	292	295	285
8	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
7	110	265	353	441	416	414	368	412	407	422	435	390	424	407	410	396
8	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
6	125	263	351	439	481	478	425	475	470	488	502	450	490	470	474	458
7	125	368	491	614	672	669	595	665	657	682	702	630	685	657	663	640
8	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2122 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	59	79	99	76	76	68	75	75	77	80	72	78	75	75	73
7	90	83	110	138	106	106	94	105	104	108	111	100	108	104	105	101
8	90	115	154	192	149	148	132	147	145	151	156	139	152	145	147	142
6	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102
7	100	105	140	175	150	149	132	148	146	152	156	140	152	146	147	142
8	100	146	195	244	208	207	184	206	203	211	217	195	212	203	205	198
6	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142
7	110	132	176	220	208	207	184	205	203	211	217	194	212	203	205	198
8	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
6	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229
7	125	185	246	308	337	335	298	333	329	342	352	315	343	329	332	321
8	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating **High Profile Range** **SSPC-SP 10** **Tables** **2123** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435				
7	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653				
8	90	709	945	1181	914	909	808	903	893	927	954	855	931	893	901	870				
6	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610				
7	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915				
8	100	900	1200	1500	1282	1275	1133	1267	1252	1300	1338	1200	1306	1252	1263	1220				
6	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848				
7	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271				
8	110	1133	1510	1888	1781	1772	1575	1761	1741	1807	1860	1668	1815	1741	1756	1696				
6	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370				
7	125	1183	1578	1972	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057				
8	125	1578	2104	2630	2882	2867	2548	2848	2816	2923	3010	2698	2936	2816	2840	2743				

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | Low Profile Range | SSPC-SP 6 | Tables 2131 PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
7	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
8	90	472	630	787	609	606	539	602	595	618	636	570	621	595	600	580
6	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
7	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
8	100	600	800	1000	854	850	756	844	835	867	892	800	871	835	842	813
6	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
7	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
8	110	755	1007	1259	1188	1182	1051	1174	1161	1205	1241	1112	1211	1161	1171	1131
6	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914
7	125	789	1052	1315	1441	1433	1274	1424	1408	1462	1505	1349	1468	1408	1420	1372
8	125	1052	1403	1754	1922	1912	1699	1899	1877	1949	2007	1799	1958	1877	1894	1829

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
7	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
8	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
7	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
8	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
7	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
8	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
6	125	263	350	438	479	477	424	474	468	486	501	449	488	468	472	456
7	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686
8	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **2133** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		**Production Rate ft^2/hr of Blasting** [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	239	319	399	308	307	273	305	301	313	322	289	314	301	304	294
7	90	345	460	575	445	442	393	440	435	451	464	416	453	435	438	423
8	90	479	638	798	617	614	545	610	603	626	644	578	629	603	608	587
6	100	304	405	506	433	430	383	428	423	439	452	405	441	423	426	412
7	100	439	585	731	625	622	552	617	610	634	653	585	637	610	616	595
8	100	607	810	1013	865	861	765	855	845	878	903	810	881	845	853	823
6	110	382	509	636	600	597	531	593	587	609	627	562	612	587	592	572
7	110	553	737	921	869	865	769	859	850	882	908	814	886	850	857	828
8	110	764	1019	1274	1202	1196	1063	1188	1175	1219	1255	1126	1225	1175	1185	1144
6	125	532	710	887	972	967	860	961	950	986	1016	911	991	950	958	926
7	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338
8	125	1066	1421	1776	1946	1936	1721	1924	1902	1974	2033	1822	1983	1902	1918	1853

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables** **2211** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured							
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196				
7	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283				
8	90	320	426	533	412	410	364	407	402	418	430	386	420	402	406	392				
6	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275				
7	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396				
8	100	405	540	675	577	574	510	570	563	585	602	540	588	563	568	549				
6	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382				
7	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551				
8	110	509	679	849	801	797	708	792	783	813	837	750	816	783	790	763				
6	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618				
7	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892				
8	125	710	947	1184	1297	1290	1147	1282	1267	1316	1355	1214	1322	1267	1278	1235				

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	80	106	133	102	102	91	101	100	104	107	96	104	100	101	98
7	90	115	153	191	148	147	131	146	145	150	154	139	151	145	146	141
8	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
6	100	101	135	169	144	143	128	143	141	146	151	135	147	141	142	137
7	100	146	195	244	208	207	184	206	203	211	218	195	212	203	205	198
8	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
6	110	128	170	213	201	200	177	198	196	203	209	188	204	196	198	191
7	110	185	246	308	290	289	257	287	284	294	303	272	296	284	286	276
8	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
6	125	178	237	296	325	323	287	321	317	329	339	304	331	317	320	309
7	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446
8	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **2213** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
7	90	371	495	619	479	476	423	473	468	485	500	448	488	468	472	456
8	90	518	691	864	668	665	591	660	653	678	698	626	681	653	658	636
6	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
7	100	473	630	788	673	669	595	665	657	683	703	630	686	657	663	641
8	100	659	878	1098	938	933	829	927	916	951	979	878	955	916	924	893
6	110	425	566	708	668	664	590	660	652	677	697	625	680	652	658	636
7	110	595	794	992	937	932	828	926	915	950	978	877	954	915	923	892
8	110	828	1104	1380	1302	1296	1152	1287	1273	1321	1360	1220	1327	1273	1284	1240
6	125	592	790	987	1082	1076	957	1069	1057	1098	1130	1013	1103	1057	1066	1030
7	125	829	1105	1381	1513	1506	1338	1496	1479	1535	1581	1417	1542	1479	1492	1441
8	125	1154	1538	1923	2106	2096	1863	2082	2058	2137	2200	1972	2146	2058	2076	2005

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating **Low Profile Range** **SSPC-SP 10** **Tables** **2221** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	248	330	413	319	317	282	315	312	324	333	299	325	312	314	304
8	90	346	461	576	446	443	394	441	435	452	465	417	454	435	439	424
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	315	420	525	449	446	397	443	438	455	468	420	457	438	442	427
8	100	439	585	731	625	622	553	618	610	634	653	585	637	610	616	595
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
7	110	397	529	661	624	621	552	617	610	633	652	584	636	610	615	594
8	110	552	736	920	868	864	768	858	848	881	907	813	885	848	856	827
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	125	553	737	921	1009	1004	893	998	986	1024	1054	945	1029	986	995	961
8	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109
7	90	124	165	206	160	159	141	158	156	162	167	149	163	156	157	152
8	90	173	230	288	222	221	197	220	217	226	232	208	227	217	219	212
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
7	100	158	210	263	224	223	198	222	219	228	234	210	229	219	221	214
8	100	220	293	366	313	311	277	309	306	317	327	293	319	306	308	298
6	110	142	189	236	223	222	197	220	218	226	233	209	227	218	220	212
7	110	199	265	331	313	311	276	309	305	317	327	293	319	305	308	298
8	110	276	368	460	434	432	384	429	424	440	453	407	442	424	428	413
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
7	125	276	368	460	504	501	446	498	492	511	526	472	514	492	497	480
8	125	385	513	641	703	699	621	694	686	713	734	658	716	686	693	669

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **2223** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
7	90	797	1063	1329	1028	1022	909	1016	1004	1043	1073	962	1047	1004	1013	978
8	90	1064	1418	1773	1371	1364	1212	1355	1340	1391	1432	1284	1397	1340	1351	1305
6	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
7	100	1013	1350	1688	1442	1434	1275	1425	1409	1463	1506	1350	1469	1409	1421	1373
8	100	1350	1800	2250	1922	1913	1700	1900	1878	1950	2008	1800	1959	1878	1895	1830
6	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
7	110	1274	1699	2124	2004	1994	1772	1981	1958	2033	2093	1877	2042	1958	1976	1908
8	110	1699	2265	2831	2672	2658	2363	2641	2611	2710	2791	2502	2723	2611	2634	2544
6	125	1183	1577	1971	2160	2149	1910	2135	2110	2191	2256	2022	2201	2110	2129	2056
7	125	1775	2367	2959	3242	3225	2867	3204	3167	3288	3386	3036	3303	3167	3195	3086
8	125	2367	3156	3945	4322	4300	3823	4272	4223	4385	4514	4047	4404	4223	4260	4115

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2231** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
7	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
8	90	709	945	1181	914	909	808	903	893	927	954	855	931	893	901	870
6	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
7	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
8	100	900	1200	1500	1282	1275	1133	1267	1252	1300	1338	1200	1306	1252	1263	1220
6	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
7	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
8	110	1133	1510	1888	1781	1772	1575	1761	1741	1807	1860	1668	1815	1741	1756	1696
6	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370
7	125	1183	1578	1972	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057
8	125	1578	2104	2630	2882	2867	2548	2848	2816	2923	3010	2698	2936	2816	2840	2743

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]																	
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
8	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
8	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
7	110	424	566	707	668	664	590	660	652	677	697	625	680	652	658	636
8	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
6	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686
7	125	592	789	986	1081	1075	956	1068	1056	1096	1129	1012	1101	1056	1065	1029
8	125	789	1052	1315	1441	1433	1274	1424	1408	1462	1505	1349	1468	1408	1420	1372

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **2233** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2241** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
7	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
8	90	320	426	533	412	410	364	407	402	418	430	386	420	402	406	392
6	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
7	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
8	100	405	540	675	577	574	510	570	563	585	602	540	588	563	568	549
6	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
7	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
8	110	509	679	849	801	797	708	792	783	813	837	750	816	783	790	763
6	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618
7	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892
8	125	710	947	1184	1297	1290	1147	1282	1267	1316	1355	1214	1322	1267	1278	1235

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | Low Profile Range | SSPC-SP 5 | Tables 2311 PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
7	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
8	90	320	426	533	412	410	364	407	402	418	430	386	420	402	406	392
6	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
7	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
8	100	405	540	675	577	574	510	570	563	585	602	540	588	563	568	549
6	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
7	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
8	110	509	679	849	801	797	708	792	783	813	837	750	816	783	790	763
6	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618
7	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892
8	125	710	947	1184	1297	1290	1147	1282	1267	1316	1355	1214	1322	1267	1278	1235

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 5** | **Tables** **2311** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
7	90	153	204	255	197	196	174	195	193	200	206	185	201	193	194	188
8	90	213	284	355	275	273	243	271	268	279	287	257	280	268	271	261
6	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
7	100	195	260	325	278	276	246	274	271	282	290	260	283	271	274	264
8	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
6	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
7	110	246	328	410	387	385	342	382	378	393	404	362	394	378	381	368
8	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
6	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412
7	125	342	456	570	625	621	552	617	610	634	652	585	636	610	616	595
8	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **2312** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
7	90	153	204	255	197	196	174	195	193	200	206	185	201	193	194	188
8	90	213	284	355	275	273	243	271	268	279	287	257	280	268	271	261
6	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
7	100	195	260	325	278	276	246	274	271	282	290	260	283	271	274	264
8	100	270	360	450	384	383	340	380	376	390	402	360	392	376	379	366
6	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
7	110	246	328	410	387	385	342	382	378	393	404	362	394	378	381	368
8	110	340	453	566	534	532	473	528	522	542	558	500	545	522	527	509
6	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412
7	125	342	456	570	625	621	552	617	610	634	652	585	636	610	616	595
8	125	473	631	789	864	860	764	854	844	877	903	809	881	844	852	823

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 5** | **Tables** 2312 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	53	71	89	69	68	61	68	67	70	72	64	70	67	68	65
7	90	77	102	128	99	98	87	97	96	100	103	92	100	96	97	94
8	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
6	100	68	90	113	96	96	85	95	94	98	100	90	98	94	95	92
7	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132
8	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
6	110	85	113	141	133	133	118	132	130	135	139	125	136	130	131	127
7	110	123	164	205	193	192	171	191	189	196	202	181	197	189	191	184
8	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
6	125	119	158	198	216	215	191	214	211	220	226	203	221	211	213	206
7	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297
8	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 5** | **Tables** **2313** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	53	71	89	69	68	61	68	67	70	72	64	70	67	68	65
7	90	77	102	128	99	98	87	97	96	100	103	92	100	96	97	94
8	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
6	100	68	90	113	96	96	85	95	94	98	100	90	98	94	95	92
7	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132
8	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
6	110	85	113	141	133	133	118	132	130	135	139	125	136	130	131	127
7	110	123	164	205	193	192	171	191	189	196	202	181	197	189	191	184
8	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
6	125	119	158	198	216	215	191	214	211	220	226	203	221	211	213	206
7	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297
8	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 5** | **Tables** **2313** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	248	330	413	319	317	282	315	312	324	333	299	325	312	314	304
8	90	346	461	576	446	443	394	441	435	452	465	417	454	435	439	424
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	315	420	525	449	446	397	443	438	455	468	420	457	438	442	427
8	100	439	585	731	625	622	553	618	610	634	653	585	637	610	616	595
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
7	110	397	529	661	624	621	552	617	610	633	652	584	636	610	615	594
8	110	552	736	920	868	864	768	858	848	881	907	813	885	848	856	827
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	125	553	737	921	1009	1004	893	998	986	1024	1054	945	1029	986	995	961
8	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	248	330	413	319	317	282	315	312	324	333	299	325	312	314	304
8	90	346	461	576	446	443	394	441	435	452	465	417	454	435	439	424
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	315	420	525	449	446	397	443	438	455	468	420	457	438	442	427
8	100	439	585	731	625	622	553	618	610	634	653	585	637	610	616	595
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
7	110	397	529	661	624	621	552	617	610	633	652	584	636	610	615	594
8	110	552	736	920	868	864	768	858	848	881	907	813	885	848	856	827
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	125	553	737	921	1009	1004	893	998	986	1024	1054	945	1029	986	995	961
8	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 10** | **Tables** **2321** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
7	90	165	220	275	213	212	188	210	208	216	222	199	217	208	210	202
8	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
7	100	210	280	350	299	298	264	296	292	303	312	280	305	292	295	285
8	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
7	110	265	353	441	416	414	368	412	407	422	435	390	424	407	410	396
8	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
6	125	263	351	439	481	478	425	475	470	488	502	450	490	470	474	458
7	125	368	491	614	672	669	595	665	657	682	702	630	685	657	663	640
8	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **2322** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
7	90	165	220	275	213	212	188	210	208	216	222	199	217	208	210	202
8	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
7	100	210	280	350	299	298	264	296	292	303	312	280	305	292	295	285
8	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
7	110	265	353	441	416	414	368	412	407	422	435	390	424	407	410	396
8	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
6	125	263	351	439	481	478	425	475	470	488	502	450	490	470	474	458
7	125	368	491	614	672	669	595	665	657	682	702	630	685	657	663	640
8	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 10** | **Tables** 2322 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	59	79	99	76	76	68	75	75	77	80	72	78	75	75	73
7	90	83	110	138	106	106	94	105	104	108	111	100	108	104	105	101
8	90	115	154	192	149	148	132	147	145	151	156	139	152	145	147	142
6	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102
7	100	105	140	175	150	149	132	148	146	152	156	140	152	146	147	142
8	100	146	195	244	208	207	184	206	203	211	217	195	212	203	205	198
6	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142
7	110	132	176	220	208	207	184	205	203	211	217	194	212	203	205	198
8	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
6	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229
7	125	185	246	308	337	335	298	333	329	342	352	315	343	329	332	321
8	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10** | **Tables** **2323** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	59	79	99	76	76	68	75	75	77	80	72	78	75	75	73
7	90	83	110	138	106	106	94	105	104	108	111	100	108	104	105	101
8	90	115	154	192	149	148	132	147	145	151	156	139	152	145	147	142
6	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102
7	100	105	140	175	150	149	132	148	146	152	156	140	152	146	147	142
8	100	146	195	244	208	207	184	206	203	211	217	195	212	203	205	198
6	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142
7	110	132	176	220	208	207	184	205	203	211	217	194	212	203	205	198
8	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
6	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229
7	125	185	246	308	337	335	298	333	329	342	352	315	343	329	332	321
8	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 10** | **Tables** **2323** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
7	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
8	90	709	945	1181	914	909	808	903	893	927	954	855	931	893	901	870
6	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
7	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
8	100	900	1200	1500	1282	1275	1133	1267	1252	1300	1338	1200	1306	1252	1263	1220
6	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
7	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
8	110	1133	1510	1888	1781	1772	1575	1761	1741	1807	1860	1668	1815	1741	1756	1696
6	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370
7	125	1183	1578	1972	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057
8	125	1578	2104	2630	2882	2867	2548	2848	2816	2923	3010	2698	2936	2816	2840	2743

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2331** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																											
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
7	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
8	90	709	945	1181	914	909	808	903	893	927	954	855	931	893	901	870
6	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
7	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
8	100	900	1200	1500	1282	1275	1133	1267	1252	1300	1338	1200	1306	1252	1263	1220
6	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
7	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
8	110	1133	1510	1888	1781	1772	1575	1761	1741	1807	1860	1668	1815	1741	1756	1696
6	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370
7	125	1183	1578	1972	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057
8	125	1578	2104	2630	2882	2867	2548	2848	2816	2923	3010	2698	2936	2816	2840	2743

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 6** | **Tables** **2331** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
7	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
8	90	472	630	787	609	606	539	602	595	618	636	570	621	595	600	580
6	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
7	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
8	100	600	800	1000	854	850	756	844	835	867	892	800	871	835	842	813
6	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
7	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
8	110	755	1007	1259	1188	1182	1051	1174	1161	1205	1241	1112	1211	1161	1171	1131
6	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914
7	125	789	1052	1315	1441	1433	1274	1424	1408	1462	1505	1349	1468	1408	1420	1372
8	125	1052	1403	1754	1922	1912	1699	1899	1877	1949	2007	1799	1958	1877	1894	1829

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** 2332 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
7	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
8	90	472	630	787	609	606	539	602	595	618	636	570	621	595	600	580
6	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
7	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
8	100	600	800	1000	854	850	756	844	835	867	892	800	871	835	842	813
6	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
7	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
8	110	755	1007	1259	1188	1182	1051	1174	1161	1205	1241	1112	1211	1161	1171	1131
6	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914
7	125	789	1052	1315	1441	1433	1274	1424	1408	1462	1505	1349	1468	1408	1420	1372
8	125	1052	1403	1754	1922	1912	1699	1899	1877	1949	2007	1799	1958	1877	1894	1829

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Medium Profile Range** | **SSPC-SP 6** | **Tables** 2332 **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
7	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
8	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
7	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
8	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
7	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
8	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
6	125	263	350	438	479	477	424	474	468	486	501	449	488	468	472	456
7	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686
8	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** 2333 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145	
7	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217	
8	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290	
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203	
7	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305	
8	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407	
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283	
7	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423	
8	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565	
6	125	263	350	438	479	477	424	474	468	486	501	449	488	468	472	456	
7	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686	
8	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914	

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **High Profile Range** | **SSPC-SP 6** | **Tables** **2333** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2341** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Tight Rust or Millscale

New Steel | **Low Profile Range** | **SSPC-SP 7** | **Tables** **2341** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	116	154	193	149	148	132	147	145	151	156	139	152	145	147	142
7	90	169	225	281	218	216	192	215	213	221	227	204	222	213	214	207
8	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
6	100	146	195	244	208	207	184	206	203	211	218	195	212	203	205	198
7	100	214	285	356	304	303	269	301	297	309	318	285	310	297	300	290
8	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
6	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
7	110	269	359	449	424	421	375	419	414	430	442	397	432	414	417	403
8	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
6	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446
7	125	374	499	624	683	680	604	675	668	693	714	640	696	668	674	651
8	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables 3111 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	77	103	129	100	99	88	98	97	101	104	93	101	97	98	95
7	90	113	150	188	145	144	128	143	142	147	151	136	148	142	143	138
8	90	153	204	255	197	196	174	195	193	200	206	185	201	193	194	188
6	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132
7	100	143	190	238	203	202	179	201	198	206	212	190	207	198	200	193
8	100	195	260	325	278	276	246	274	271	282	290	260	283	271	274	264
6	110	122	163	204	192	191	170	190	188	195	201	180	196	188	190	183
7	110	179	239	299	282	281	249	279	275	286	294	264	287	275	278	268
8	110	246	328	410	387	385	342	382	378	393	404	362	394	378	381	368
6	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297
7	125	250	333	416	456	454	403	451	446	463	476	427	465	446	450	434
8	125	342	456	570	625	621	552	617	610	634	652	585	636	610	616	595

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]																		
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**							
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron				
6	90	38	51	64	49	49	44	49	48	50	51	46	50	48	49	47				
7	90	56	75	94	73	72	64	72	71	74	76	68	74	71	71	69				
8	90	77	102	128	99	98	87	97	96	100	103	92	100	96	97	94				
6	100	49	65	81	69	69	61	69	68	70	73	65	71	68	68	66				
7	100	71	95	119	101	101	90	100	99	103	106	95	103	99	100	97				
8	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132				
6	110	62	82	103	97	96	86	96	95	98	101	91	99	95	95	92				
7	110	90	120	150	142	141	125	140	138	144	148	133	144	138	140	135				
8	110	123	164	205	193	192	171	191	189	196	202	181	197	189	191	184				
6	125	86	114	143	156	155	138	154	153	158	163	146	159	153	154	149				
7	125	125	166	208	227	226	201	225	222	231	237	213	232	222	224	216				
8	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297				

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 5** | **Tables** **3113** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																	
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**						
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	134	178	223	172	171	152	170	168	175	180	161	175	168	170	164			
7	90	186	248	310	240	239	212	237	234	243	250	225	244	234	236	228			
8	90	257	342	428	331	329	292	327	323	335	345	310	337	323	326	315			
6	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229			
7	100	236	315	394	336	335	298	333	329	341	351	315	343	329	332	320			
8	100	326	435	544	465	462	411	459	454	471	485	435	473	454	458	442			
6	110	212	283	354	334	332	295	330	326	339	349	313	340	326	329	318			
7	110	297	396	495	467	465	413	462	456	474	488	437	476	456	460	445			
8	110	411	548	685	646	643	572	639	632	656	675	605	659	632	637	615			
6	125	296	395	494	541	538	478	535	529	549	565	507	551	529	533	515			
7	125	414	552	690	756	752	669	747	739	767	790	708	770	739	745	720			
8	125	572	762	953	1044	1038	923	1032	1020	1059	1090	977	1063	1020	1029	994			

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting[1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109
7	90	124	165	206	160	159	141	158	156	162	167	149	163	156	157	152
8	90	171	228	285	220	219	195	218	215	224	230	206	225	215	217	210
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
7	100	158	210	263	224	223	198	222	219	228	234	210	229	219	221	214
8	100	218	290	363	310	308	274	306	303	314	323	290	316	303	305	295
6	110	141	188	235	222	221	196	219	217	225	232	208	226	217	219	211
7	110	198	264	330	311	310	275	308	304	316	325	292	317	304	307	296
8	110	274	365	456	431	428	381	426	421	437	450	403	439	421	424	410
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
7	125	276	368	460	504	501	446	498	492	511	526	472	514	492	497	480
8	125	381	508	635	696	692	615	688	680	706	727	651	709	680	686	662

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables 3122 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	44	59	74	57	57	50	56	56	58	60	53	58	56	56	54
7	90	62	83	104	80	80	71	79	78	81	84	75	82	78	79	76
8	90	86	114	143	110	110	97	109	108	112	115	103	112	108	109	105
6	100	56	75	94	80	80	71	79	78	81	84	75	82	78	79	76
7	100	79	105	131	112	112	99	111	110	114	117	105	114	110	111	107
8	100	109	145	181	155	154	137	153	151	157	162	145	158	151	153	147
6	110	70	94	118	111	110	98	110	108	112	116	104	113	108	109	106
7	110	99	132	165	156	155	138	154	152	158	163	146	159	152	153	148
8	110	137	183	229	216	215	191	213	211	219	225	202	220	211	213	206
6	125	99	132	165	181	180	160	179	177	183	189	169	184	177	178	172
7	125	138	184	230	252	251	223	249	246	256	263	236	257	246	248	240
8	125	191	254	318	348	346	308	344	340	353	363	326	354	340	343	331

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **3123** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
7	90	398	531	664	513	511	454	507	502	521	536	481	523	502	506	489
8	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
6	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
7	100	506	675	844	721	717	638	713	704	731	753	675	735	704	711	686
8	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
6	110	425	567	709	669	665	592	661	654	679	699	626	682	654	659	637
7	110	638	850	1063	1003	998	887	991	980	1017	1047	939	1022	980	988	955
8	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
6	125	591	788	985	1079	1074	954	1067	1054	1095	1127	1011	1100	1054	1064	1027
7	125	887	1183	1479	1620	1612	1433	1601	1583	1644	1692	1517	1651	1583	1597	1542
8	125	1184	1578	1973	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **3131** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
8	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
8	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
6	110	284	378	473	446	444	394	441	436	452	466	418	454	436	440	425
7	110	425	567	709	669	665	592	661	654	679	699	626	682	654	659	637
8	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
6	125	394	525	656	719	715	636	711	703	729	751	673	733	703	709	684
7	125	592	789	986	1081	1075	956	1068	1056	1096	1129	1012	1101	1056	1065	1029
8	125	789	1052	1315	1441	1433	1274	1424	1408	1462	1505	1349	1468	1408	1420	1372

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables** **3132** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron	
6	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109	
7	90	133	177	221	171	170	151	169	167	174	179	160	174	167	169	163	
8	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217	
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153	
7	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229	
8	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305	
6	110	142	189	236	223	222	197	220	218	226	233	209	227	218	220	212	
7	110	212	283	354	334	332	295	330	326	339	349	313	340	326	329	318	
8	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423	
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343	
7	125	296	394	493	540	537	477	533	527	547	564	505	550	527	532	514	
8	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686	

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** **3133** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
Nozzle Size	Pressure (psi)	Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
		-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	173	231	289	223	222	198	221	218	227	233	209	228	218	220	213
7	90	253	337	421	326	324	288	322	318	331	340	305	332	318	321	310
8	90	345	460	575	445	442	393	440	435	451	464	416	453	435	438	423
6	100	220	293	366	313	311	277	309	306	317	327	293	319	306	308	298
7	100	321	428	535	457	455	404	452	447	464	477	428	466	447	451	435
8	100	439	585	731	625	622	553	618	610	634	653	585	637	610	616	595
6	110	275	367	459	433	431	383	428	423	439	452	405	441	423	427	412
7	110	404	538	673	635	631	561	627	620	644	663	594	647	620	626	604
8	110	553	737	921	869	865	769	859	850	882	908	814	886	850	857	828
6	125	385	513	641	703	699	621	694	686	713	734	658	716	686	693	669
7	125	562	749	936	1026	1021	907	1014	1002	1041	1071	961	1045	1002	1011	977
8	125	770	1026	1283	1405	1398	1243	1389	1373	1425	1468	1316	1432	1373	1385	1338

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating **Low Profile Range** **SSPC-SP 5** **Tables 3211 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	116	154	193	149	148	132	147	145	151	156	139	152	145	147	142
7	90	169	225	281	218	216	192	215	213	221	227	204	222	213	214	207
8	90	230	307	384	297	295	262	293	290	301	310	278	302	290	293	283
6	100	146	195	244	208	207	184	206	203	211	218	195	212	203	205	198
7	100	214	285	356	304	303	269	301	297	309	318	285	310	297	300	290
8	100	293	390	488	417	414	368	412	407	423	435	390	424	407	411	396
6	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
7	110	269	359	449	424	421	375	419	414	430	442	397	432	414	417	403
8	110	368	491	614	579	576	512	573	566	588	605	542	590	566	571	551
6	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446
7	125	374	499	624	683	680	604	675	668	693	714	640	696	668	674	651
8	125	513	684	855	937	932	828	926	915	950	978	877	955	915	923	892

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | Medium Profile Range | SSPC-SP 5 | Tables 3212 PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	58	77	96	74	74	66	74	73	76	78	70	76	73	73	71
7	90	84	112	140	108	108	96	107	106	110	113	101	110	106	107	103
8	90	115	153	191	148	147	131	146	145	150	154	139	151	145	146	141
6	100	74	98	123	105	104	93	103	102	106	109	98	107	102	103	100
7	100	107	143	179	153	152	135	151	149	155	160	143	156	149	151	145
8	100	146	195	244	208	207	184	206	203	211	217	195	212	203	205	198
6	110	91	122	152	144	143	127	142	141	146	150	135	147	141	142	137
7	110	134	179	224	211	210	187	209	206	214	221	198	215	206	208	201
8	110	185	246	308	290	289	257	287	284	294	303	272	296	284	286	276
6	125	128	171	214	234	233	207	231	229	238	245	219	239	229	231	223
7	125	188	250	313	342	341	303	338	335	347	358	321	349	335	337	326
8	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | High Profile Range | SSPC-SP 5 | Tables 3213 PC

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	200	266	333	257	256	227	254	251	261	269	241	262	251	253	245
7	90	279	372	465	360	358	318	355	351	365	376	337	366	351	354	342
8	90	385	513	641	496	493	439	490	485	503	518	464	505	485	489	472
6	100	254	338	423	361	359	319	357	353	366	377	338	368	353	356	344
7	100	355	473	591	505	503	447	499	494	512	528	473	515	494	498	481
8	100	490	653	816	697	694	617	689	681	707	728	653	711	681	687	664
6	110	318	424	530	500	498	442	494	489	507	522	468	510	489	493	476
7	110	446	595	744	702	698	621	694	686	712	733	657	715	686	692	668
8	110	617	822	1028	970	965	858	958	947	984	1013	908	988	947	956	923
6	125	444	592	740	811	807	717	801	792	822	847	759	826	792	799	772
7	125	621	828	1035	1134	1128	1003	1121	1108	1150	1184	1062	1156	1108	1118	1080
8	125	857	1143	1429	1565	1557	1384	1547	1530	1588	1635	1466	1595	1530	1543	1490

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables 3221 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	134	178	223	172	171	152	170	168	175	180	161	175	168	170	164
7	90	186	248	310	240	239	212	237	234	243	250	225	244	234	236	228
8	90	257	342	428	331	329	292	327	323	335	345	310	337	323	326	315
6	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229
7	100	236	315	394	336	335	298	333	329	341	351	315	343	329	332	320
8	100	326	435	544	465	462	411	459	454	471	485	435	473	454	458	442
6	110	212	283	354	334	332	295	330	326	339	349	313	340	326	329	318
7	110	297	396	495	467	465	413	462	456	474	488	437	476	456	460	445
8	110	411	548	685	646	643	572	639	632	656	675	605	659	632	637	615
6	125	296	395	494	541	538	478	535	529	549	565	507	551	529	533	515
7	125	414	552	690	756	752	669	747	739	767	790	708	770	739	745	720
8	125	572	762	953	1044	1038	923	1032	1020	1059	1090	977	1063	1020	1029	994

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables 3222 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	67	89	111	86	86	76	85	84	87	90	81	88	84	85	82
7	90	93	124	155	120	119	106	118	117	122	125	112	122	117	118	114
8	90	128	171	214	165	164	146	163	162	168	173	155	168	162	163	157
6	100	85	113	141	121	120	107	119	118	122	126	113	123	118	119	115
7	100	119	158	198	169	168	149	167	165	171	176	158	172	165	166	161
8	100	164	218	273	233	232	206	230	227	236	243	218	237	227	229	222
6	110	106	141	176	166	165	147	164	163	169	174	156	169	163	164	158
7	110	149	198	248	234	232	207	231	228	237	244	219	238	228	230	222
8	110	206	274	343	323	322	286	319	316	328	338	303	329	316	319	308
6	125	148	197	246	270	268	239	267	264	274	282	253	275	264	266	257
7	125	207	276	345	378	376	334	374	369	383	395	354	385	369	373	360
8	125	286	381	476	522	519	461	516	510	529	545	489	532	510	514	497

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	398	531	664	513	511	454	507	502	521	536	481	523	502	506	489
7	90	598	797	996	771	767	681	762	753	782	805	722	785	753	759	734
8	90	797	1063	1329	1028	1022	909	1016	1004	1043	1073	962	1047	1004	1013	978
6	100	506	675	844	721	717	638	713	704	731	753	675	735	704	711	686
7	100	760	1013	1266	1082	1076	957	1069	1057	1097	1130	1013	1102	1057	1066	1030
8	100	1013	1350	1688	1442	1434	1275	1425	1409	1463	1506	1350	1469	1409	1421	1373
6	110	638	851	1064	1004	999	888	992	981	1018	1048	940	1023	981	990	956
7	110	956	1275	1594	1504	1496	1330	1487	1470	1526	1571	1408	1533	1470	1483	1432
8	110	1274	1699	2124	2004	1994	1772	1981	1958	2033	2093	1877	2042	1958	1976	1908
6	125	887	1182	1478	1619	1611	1432	1600	1582	1642	1691	1516	1650	1582	1596	1541
7	125	1331	1774	2218	2430	2417	2149	2401	2374	2465	2538	2275	2476	2374	2395	2313
8	125	1775	2367	2959	3242	3225	2867	3204	3167	3288	3386	3036	3303	3167	3195	3086

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **3231** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
7	90	398	531	664	513	511	454	507	502	521	536	481	523	502	506	489
8	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
6	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
7	100	506	675	844	721	717	638	713	704	731	753	675	735	704	711	686
8	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
6	110	425	567	709	669	665	592	661	654	679	699	626	682	654	659	637
7	110	638	850	1063	1003	998	887	991	980	1017	1047	939	1022	980	988	955
8	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
6	125	591	788	985	1079	1074	954	1067	1054	1095	1127	1011	1100	1054	1064	1027
7	125	887	1183	1479	1620	1612	1433	1601	1583	1644	1692	1517	1651	1583	1597	1542
8	125	1184	1578	1973	2161	2150	1911	2136	2112	2192	2257	2024	2202	2112	2130	2057

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	133	177	221	171	170	151	169	167	174	179	160	174	167	169	163
7	90	200	266	333	257	256	227	254	251	261	269	241	262	251	253	245
8	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
6	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229
7	100	254	338	423	361	359	319	357	353	366	377	338	368	353	356	344
8	100	338	450	563	481	478	425	475	470	487	502	450	490	470	474	458
6	110	213	284	355	335	333	296	331	327	340	350	314	341	327	330	319
7	110	319	425	531	501	499	443	496	490	509	524	469	511	490	494	477
8	110	425	566	708	668	664	590	660	652	677	697	625	680	652	658	636
6	125	296	394	493	540	537	477	533	527	547	564	505	550	527	532	514
7	125	443	591	739	809	805	716	800	791	821	845	758	825	791	798	771
8	125	592	789	986	1081	1075	956	1068	1056	1096	1129	1012	1101	1056	1065	1029

[1] Production rates are based on a consensus of replies to a user survey.

Thin Paint or Rusted Thin Paint

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** 3233 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft^2/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	80	106	133	102	102	91	101	100	104	107	96	104	100	101	98
6	100	101	135	169	144	143	128	143	141	146	151	135	147	141	142	137
6	110	128	171	214	202	201	178	199	197	205	211	189	206	197	199	192
6	125	177	236	295	323	322	286	319	316	328	338	303	329	316	319	308
7	90	116	154	193	149	148	132	147	145	151	156	139	152	145	147	142
7	100	146	195	244	208	207	184	206	203	211	218	195	212	203	205	198
7	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
7	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446
8	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
8	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
8	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
8	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	53	70	88	68	67	60	67	66	69	71	63	69	66	67	64
6	100	68	90	113	96	96	85	95	94	98	100	90	98	94	95	92
6	110	86	114	143	134	134	119	133	131	136	140	126	137	131	133	128
6	125	118	157	196	215	214	190	213	210	218	225	201	219	210	212	205
7	90	77	103	129	100	99	88	98	97	101	104	93	101	97	98	95
7	100	98	130	163	139	138	123	137	136	141	145	130	141	136	137	132
7	110	122	163	204	192	191	170	190	188	195	201	180	196	188	190	183
7	125	171	228	285	312	311	276	309	305	317	326	292	318	305	308	297
8	90	107	142	178	137	137	121	136	134	139	143	129	140	134	135	131
8	100	135	180	225	192	191	170	190	188	195	201	180	196	188	189	183
8	110	170	226	283	267	265	236	264	260	270	278	250	272	260	263	254
8	125	237	316	395	433	431	383	428	423	439	452	405	441	423	427	412

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 5** **Tables** **4112** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	26	35	44	34	34	30	33	33	34	35	32	34	33	33	32
6	100	34	45	56	48	48	43	48	47	49	50	45	49	47	47	46
6	110	43	57	71	67	67	59	66	66	68	70	63	69	66	66	64
6	125	59	79	99	108	108	96	107	106	110	113	101	110	106	107	103
7	90	38	51	64	49	49	44	49	48	50	51	46	50	48	49	47
7	100	49	65	81	69	69	61	69	68	70	73	65	71	68	68	66
7	110	61	82	103	97	96	86	96	95	98	101	91	99	95	95	92
7	125	86	114	143	156	155	138	154	153	158	163	146	159	153	154	149
8	90	53	71	89	69	68	61	68	67	70	72	64	70	67	68	65
8	100	67	90	113	96	96	85	95	94	97	100	90	98	94	95	92
8	110	85	113	141	133	133	118	132	130	135	139	125	136	130	131	127
8	125	119	158	198	216	215	191	214	211	220	226	203	221	211	213	206

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | High Profile Range | SSPC-SP 5 | **Tables** 4113 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	88	117	146	113	113	100	112	111	115	118	106	115	111	111	108
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
6	110	143	190	238	224	223	198	222	219	227	234	210	228	219	221	213
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
7	90	125	166	208	160	160	142	159	157	163	168	150	164	157	158	153
7	100	158	210	263	224	223	198	222	219	228	234	210	229	219	221	214
7	110	198	264	330	311	310	275	308	304	316	325	292	317	304	307	296
7	125	275	367	459	503	500	445	497	491	510	525	471	512	491	495	478
8	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
8	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
8	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
8	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables** 4121 **PC**

Operating Conditions		Production Rate ft²/hr of Blasting[1]																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	58	78	97	75	75	67	75	74	76	79	71	77	74	74	72			
6	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102			
6	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142			
6	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229			
7	90	83	111	139	107	107	95	106	105	109	112	100	109	105	106	102			
7	100	105	140	175	150	149	132	148	146	152	156	140	152	146	147	142			
7	110	132	176	220	208	207	184	205	203	211	217	194	212	203	205	198			
7	125	184	245	306	336	334	297	332	328	340	350	314	342	328	331	319			
8	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145			
8	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203			
8	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283			
8	125	263	351	439	481	478	425	475	470	488	502	450	490	470	474	458			

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating **Medium Profile Range** **SSPC-SP 10** **Tables** **4122** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	29	39	49	38	38	33	37	37	38	39	35	38	37	37	36
6	100	38	50	63	53	53	47	53	52	54	56	50	54	52	53	51
6	110	47	63	79	74	74	66	73	73	75	78	70	76	73	73	71
6	125	66	88	110	121	120	107	119	118	122	126	113	123	118	119	115
7	90	41	55	69	53	53	47	53	52	54	56	50	54	52	52	51
7	100	53	70	88	75	74	66	74	73	76	78	70	76	73	74	71
7	110	66	88	110	104	103	92	103	101	105	108	97	106	101	102	99
7	125	92	122	153	167	166	148	165	163	169	175	156	170	163	165	159
8	90	59	79	99	76	76	68	75	75	77	80	72	78	75	75	73
8	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102
8	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142
8	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 10** | **Tables** **4123** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
7	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
7	110	425	567	709	669	665	592	661	654	679	699	626	682	654	659	637
7	125	591	788	985	1079	1074	954	1067	1054	1095	1127	1011	1100	1054	1064	1027
8	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
8	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
8	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
8	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **4131** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
6	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
6	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
6	125	263	351	439	481	478	425	475	470	488	502	450	490	470	474	458
7	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
7	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
7	110	284	378	473	446	444	394	441	436	452	466	418	454	436	440	425
7	125	394	525	656	719	715	636	711	703	729	751	673	733	703	709	684
8	90	236	315	394	305	303	269	301	298	309	318	285	310	298	300	290
8	100	300	400	500	427	425	378	422	417	433	446	400	435	417	421	407
8	110	377	503	629	593	590	525	586	580	602	620	556	605	580	585	565
8	125	526	701	876	960	955	849	949	938	974	1003	899	978	938	946	914

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Medium Profile Range** | **SSPC-SP 6** | **Tables 4132 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	59	79	99	76	76	68	75	75	77	80	72	78	75	75	73
6	100	75	100	125	107	106	94	106	104	108	112	100	109	104	105	102
6	110	95	126	158	149	148	131	147	145	151	155	139	151	145	147	142
6	125	132	176	220	241	240	213	238	236	245	252	226	246	236	238	229
7	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109
7	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
7	110	142	189	236	223	222	197	220	218	226	233	209	227	218	220	212
7	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
8	90	119	158	198	153	152	135	151	149	155	160	143	156	149	151	145
8	100	150	200	250	214	213	189	211	209	217	223	200	218	209	211	203
8	110	189	252	315	297	296	263	294	290	302	310	278	303	290	293	283
8	125	263	350	438	479	477	424	474	468	486	501	449	488	468	472	456

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **High Profile Range** | **SSPC-SP 6** | **Tables 4133 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Hard Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables** **4141** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	119	159	199	154	153	136	152	150	156	161	144	157	150	152	146
6	100	152	203	254	217	216	192	214	212	220	226	203	221	212	214	206
6	110	192	256	320	302	300	267	298	295	306	315	283	308	295	298	287
6	125	266	354	443	485	482	429	479	474	492	506	454	494	474	478	462
7	90	173	231	289	223	222	198	221	218	227	233	209	228	218	220	213
7	100	220	293	366	313	311	277	309	306	317	327	293	319	306	308	298
7	110	275	367	459	433	431	383	428	423	439	452	405	441	423	427	412
7	125	385	513	641	703	699	621	694	686	713	734	658	716	686	693	669
8	90	239	319	399	308	307	273	305	301	313	322	289	314	301	304	294
8	100	304	405	506	433	430	383	428	423	439	452	405	441	423	426	412
8	110	382	509	636	600	597	531	593	587	609	627	562	612	587	592	572
8	125	533	710	888	972	967	860	961	950	986	1016	911	991	950	958	926

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 5** | **Tables 4211 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**				
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	80	106	133	102	102	91	101	100	104	107	96	104	100	101	98
6	100	101	135	169	144	143	128	143	141	146	151	135	147	141	142	137
6	110	128	171	214	202	201	178	199	197	205	211	189	206	197	199	192
6	125	177	236	295	323	322	286	319	316	328	338	303	329	316	319	308
7	90	116	154	193	149	148	132	147	145	151	156	139	152	145	147	142
7	100	146	195	244	208	207	184	206	203	211	218	195	212	203	205	198
7	110	184	245	306	289	288	256	286	282	293	302	271	295	282	285	275
7	125	257	342	428	468	466	414	463	458	475	489	439	477	458	462	446
8	90	160	213	266	206	205	182	204	201	209	215	193	210	201	203	196
8	100	203	270	338	288	287	255	285	282	293	301	270	294	282	284	275
8	110	255	340	425	401	399	355	396	392	407	419	376	409	392	395	382
8	125	356	474	593	649	646	574	642	634	659	678	608	662	634	640	618

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 5** | **Tables** **4212** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]																	
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured						
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron			
6	90	40	53	66	51	51	45	51	50	52	54	48	52	50	51	49			
6	100	51	68	85	73	72	64	72	71	74	76	68	74	71	72	69			
6	110	64	85	106	100	100	89	99	98	102	105	94	102	98	99	95			
6	125	89	118	148	162	161	143	160	158	164	169	151	165	158	159	154			
7	90	58	77	96	74	74	66	74	73	76	78	70	76	73	73	71			
7	100	74	98	123	105	104	93	103	102	106	109	98	107	102	103	100			
7	110	92	122	153	144	143	127	142	141	146	150	135	147	141	142	137			
7	125	128	171	214	234	233	207	231	229	238	245	219	239	229	231	223			
8	90	80	106	133	102	102	91	101	100	104	107	96	104	100	101	98			
8	100	101	135	169	144	143	128	143	141	146	151	135	147	141	142	137			
8	110	128	170	213	201	200	177	198	196	203	209	188	204	196	198	191			
8	125	178	237	296	325	323	287	321	317	329	339	304	331	317	320	309			

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	132	176	220	170	169	150	168	166	173	178	159	173	166	168	162
6	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229
6	110	213	284	355	335	333	296	331	327	340	350	314	341	327	330	319
6	125	296	395	494	541	538	478	535	529	549	565	507	551	529	533	515
7	90	187	249	311	241	240	213	238	235	244	251	225	245	235	237	229
7	100	236	315	394	336	335	298	333	329	341	351	315	343	329	332	320
7	110	297	396	495	467	465	413	462	456	474	488	437	476	456	460	445
7	125	413	551	689	755	751	667	746	737	766	788	707	769	737	744	718
8	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
8	100	338	450	563	481	478	425	475	470	487	502	450	490	470	474	458
8	110	425	566	708	668	664	590	660	652	677	697	625	680	652	658	636
8	125	593	790	988	1082	1076	957	1069	1057	1098	1130	1013	1103	1057	1066	1030

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 10** | **Tables 4221 PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	88	117	146	113	113	100	112	111	115	118	106	115	111	111	108
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
6	110	143	190	238	224	223	198	222	219	227	234	210	228	219	221	213
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
7	90	125	166	208	160	160	142	159	157	163	168	150	164	157	158	153
7	100	158	210	263	224	223	198	222	219	228	234	210	229	219	221	214
7	110	198	264	330	311	310	275	308	304	316	325	292	317	304	307	296
7	125	275	367	459	503	500	445	497	491	510	525	471	512	491	495	478
8	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
8	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
8	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
8	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Medium Profile Range** | **SSPC-SP 10** | **Tables** **4222** **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]														
Nozzle Size	Pressure (psi)	Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured			
		-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	44	59	74	57	57	50	56	56	58	60	53	58	56	56	54
6	100	56	75	94	80	80	71	79	78	81	84	75	82	78	79	76
6	110	71	95	119	112	111	99	111	110	114	117	105	114	110	110	107
6	125	99	132	165	181	180	160	179	177	183	189	169	184	177	178	172
7	90	62	83	104	80	80	71	79	78	81	84	75	82	78	79	76
7	100	79	105	131	112	112	99	111	110	114	117	105	114	110	111	107
7	110	99	132	165	156	155	138	154	152	158	163	146	159	152	153	148
7	125	138	184	230	252	251	223	249	246	256	263	236	257	246	248	240
8	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109
8	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
8	110	142	189	236	223	222	197	220	218	226	233	209	227	218	220	212
8	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating **High Profile Range** **SSPC-SP 10** **Tables** **4223** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting[1]															
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured				
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
6	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
6	110	425	566	708	668	664	590	660	652	677	697	625	680	652	658	636
6	125	592	790	987	1082	1076	957	1069	1057	1098	1130	1013	1103	1057	1066	1030
7	90	398	531	664	513	511	454	507	502	521	536	481	523	502	506	489
7	100	506	675	844	721	717	638	713	704	731	753	675	735	704	711	686
7	110	638	851	1064	1004	999	888	992	981	1018	1048	940	1023	981	990	956
7	125	887	1182	1478	1619	1611	1432	1600	1582	1642	1691	1516	1650	1582	1596	1541
8	90	532	709	886	685	682	606	678	670	695	716	642	698	670	676	653
8	100	675	900	1125	961	956	850	950	939	975	1004	900	979	939	947	915
8	110	849	1132	1415	1335	1329	1181	1320	1305	1355	1395	1250	1361	1305	1316	1271
8	125	1183	1577	1971	2160	2149	1910	2135	2110	2191	2256	2022	2201	2110	2129	2056

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 6** | **Tables** **4231** **PC**

Operating Conditions		Production Rate ft²/hr of Blasting [1]														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
6	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
6	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
6	125	395	527	659	722	718	638	713	705	732	754	676	735	705	711	687
7	90	266	354	443	342	341	303	338	334	347	357	320	349	334	337	326
7	100	338	450	563	481	478	425	475	470	488	502	450	490	470	474	458
7	110	425	567	709	669	665	592	661	654	679	699	626	682	654	659	637
7	125	591	788	985	1079	1074	954	1067	1054	1095	1127	1011	1100	1054	1064	1027
8	90	355	473	591	457	455	404	452	447	464	478	428	466	447	451	435
8	100	450	600	750	641	638	567	633	626	650	669	600	653	626	632	610
8	110	566	755	944	891	886	788	880	870	903	930	834	908	870	878	848
8	125	788	1051	1314	1439	1432	1273	1423	1406	1460	1503	1348	1467	1406	1419	1370

[1] Production rates are based on a consensus of replies to a user survey.

Operating Conditions		Production Rate ft²/hr of Blasting [1]																			
		Typical Mineral Abrasive			Refinery & By-Product Grits				Natural or Mined Grits & Sands				Manufactured								
Nozzle Size	Pressure (psi)	-25%	Median	+25%	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	89	118	148	114	114	101	113	111	116	119	107	116	111	112	109
6	100	113	150	188	160	159	142	158	157	163	167	150	163	157	158	153
6	110	142	189	236	223	222	197	220	218	226	233	209	227	218	220	212
6	125	197	263	329	360	358	319	356	352	365	376	337	367	352	355	343
7	90	133	177	221	171	170	151	169	167	174	179	160	174	167	169	163
7	100	169	225	281	240	239	213	238	235	244	251	225	245	235	237	229
7	110	213	284	355	335	333	296	331	327	340	350	314	341	327	330	319
7	125	296	394	493	540	537	477	533	527	547	564	505	550	527	532	514
8	90	177	236	295	228	227	202	226	223	231	238	214	232	223	225	217
8	100	225	300	375	320	319	283	317	313	325	335	300	326	313	316	305
8	110	283	377	471	445	442	393	440	435	451	464	416	453	435	438	423
8	125	395	526	658	720	717	637	712	704	731	752	675	734	704	710	686

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **High Profile Range** | **SSPC-SP 6** | **Tables** 4233 **PC**

Operating Conditions		Production Rate ft^2/hr of Blasting [1]														
		Typical Mineral Abrasive			**Refinery & By-Product Grits**				**Natural or Mined Grits & Sands**				**Manufactured**			
Nozzle Size	**Pressure (psi)**	**-25%**	**Median**	**+25%**	Copper	Coal	Nickel	Iron	Olivine	Staurolite	Garnet	Silica	Zircon	Alumina	Glass	Steel Iron
6	90	591	788	985	762	758	674	753	744	773	796	713	776	744	751	725
7	90	886	1181	1476	1142	1136	1010	1129	1116	1158	1193	1069	1163	1116	1125	1087
8	90	1181	1574	1968	1522	1514	1346	1504	1487	1544	1589	1425	1551	1487	1500	1449
6	100	750	1000	1250	1068	1063	944	1056	1043	1083	1115	1000	1088	1043	1053	1017
7	100	1125	1500	1875	1602	1594	1417	1583	1565	1625	1673	1500	1632	1565	1579	1525
8	100	1500	2000	2500	2136	2125	1889	2111	2087	2167	2231	2000	2176	2087	2105	2033
6	110	944	1258	1573	1484	1476	1312	1467	1450	1505	1550	1390	1512	1450	1463	1413
7	110	1416	1888	2360	2227	2216	1970	2201	2176	2259	2326	2086	2270	2176	2195	2120
8	110	1889	2518	3148	2970	2955	2627	2936	2902	3013	3102	2781	3027	2902	2928	2828
6	125	1315	1753	2191	2401	2389	2123	2373	2346	2435	2507	2248	2446	2346	2366	2286
7	125	1972	2629	3286	3601	3582	3184	3559	3518	3652	3761	3372	3669	3518	3549	3428
8	125	2630	3507	4384	4803	4779	4248	4747	4693	4872	5016	4497	4894	4693	4734	4572

[1] Production rates are based on a consensus of replies to a user survey.

Thick Paint, Heavy Millscale or Heavy Pitted Rust

Soft Coating | **Low Profile Range** | **SSPC-SP 7** | **Tables 4241 PC**

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